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CHAPTER I.

The Khalsa Villages, Physical Features, Soils, Rainfall

The Khalsa villages.

1 The Khalsa villages of Bikaner are situated in various portions of the State Excluding the Tazimi villages, with which this settlement is not concerned, they number in all 654, of these, 438 are situated in a practically continuous block in the northern Nizamat of Suratgarh, which consists almost entirely of Khalsa villages In the eastern Nizamat of Reni, there are 147 Khalsa villages, situated for the most part in Tahsils Bhadra and Rajgarh, the numbers in these Tahsils being respectively 68 and 59 The Bikaner Tahsil has the next largest number of such villages, i.e. 49 while the remaining few are very sparsely scattered through the other Tahsils of the State It will thus be seen that the majority of the Khalsa villages are situated in the northern and eastern portions of the State

Physical configuration

2 The Bikaner State is situated in the northern corner of Rajputana, and the greater part of it is included within the limits of the unproductive and ill watered plain of undulating sand which stretches north and north west of the Aravallis

The southern, central, and western portions of the State form a plain of the lightest class of sandy soil, broken at short intervals by ridges *(dhora or tiba)* of almost pure sand, which, in some parts, more especially in the centre and south are of very considerable height Occasionally an extensive level expanse (*tal*) of firmer soil marked by the absence of these sandy ridges is met with South west of Bikaner City towards the Jaisalmer border, there is a tract of level, firm, and somewhat stony soil, which is fairly productive under good rainfall and is known as the Magra In the south western portion of the Anupgarh Tahsil, the area known as Chitrang presents curious features It is an extensive plain of hard level soil, which, owing to the excessive presence of natural salts, is unfitted for the production of crops The *sajji* and *lani* plants, from both of which soda is extensively manufactured, grow, however, in this area in abundance Low sand hills, which bear a fair crop of grass, occur here and there in this tract The northern limit of the sandy tract may be roughly drawn at the old bed of the Ghaggar, which runs in a westerly direction through the Suratgarh Nizamat Light soil is met with for some distance north of the Ghaggar but the lofty sand hills characteristic of the central and western portions of the State come to an abrupt stop on its southern bank The northern boundary of the sandy tract (*dhora*) runs eastward along the southern bank of the Ghaggar to the village of Rangmahal, a few miles east of Suratgarh, it then turns in a south eastern direction through the Nohar Tahsil and finally runs southward, in a more or less definite line along the western boundary of the Reni Nizamat into the Sujangarh Nizamat, and so on into Marwar Beyond the Ghaggar, the soil becomes more level and less sandy as we go northward, and the northern portion of the Suratgarh Nizamat is the

most fertile part of the State, so far as quality of soil is concerned. In Tahsils Nohar and Bhadra north-east and east of the boundary of the central sandy tract described above, we meet with fairly level soil interspersed more or less thickly with sand ridges, but these are of no great height. They become less frequent as the eastern boundary of the State in Tahsil Bhadra is approached, and here the soil is generally level with a considerable admixture of loam in place of sand. Turning south again sandy ridges and light soil are common in the Rajgarh Tahsil, and west of this the central sandy tracts are again met with. There are no rocky hills in the State except at the south-east corner near the point of trijunction of the borders of Bikaner, Jaipur and Marwar.

Streams.

3. The old bed of the Ghaggar is a curious physical feature. It has been already referred to. In former times, the Ghaggar was no doubt a river of considerable size carrying a large volume of water, and probably joined the Sutlej after flowing through Bikaner and Bahawalpur. This state of things has long since ceased to exist. The bed is now dry except after the rains, and even then the water rarely flows more than a mile or two west of Hanumangarh. A Rajbaha from a branch of the Sarhind Canal runs through six villages in the Northern angle of the Mirzawala Tahsil. Its object was to give these villages the benefit of the waste water from the Canal, but there has been no flow for several years. A small *nala* or shallow depression runs northward across the border of Shekhawati into a few villages situated to the south of Rajgarh. In years of sufficient rainfall, the stream brings down a certain volume of water, but it is of little or no use for agricultural purposes. The Western Jumna Canal runs westward across the Hissar border as far as Bhadra. Practically only waste water comes down it and the supply for irrigation purposes is uncertain. There are no other streams whatever in the State.

Vegetation.

4. With the exception of grasses, which will be noticed below, Bikaner can boast of but a very scanty vegetation. The commonest tree is the *jand* or *khejra* ; in the more level and firmer soils the *beri* is sometimes seen, and the *kikar* is occasionally met with north of the Ghaggar ; the *babul*, a stunted *kikar*, and the *phog* are common on the sand hills, especially the latter. The *sajji* (*salsola*) is an important and valuable plant which grows plentifully in the firm soil north of the Ghaggar and in the Chitrang area of Anupgarh ; as noted above considerable quantities of soda are manufactured from this plant. The *lani*, a plant of the same species, but of a darker colour, is generally found in conjunction with the *sajji*. It yields soda of an inferior quality. The *pala* bush is common in the more level and less sandy soils. The *jal*, *kair* and *ak* are also not unfrequently met with.

Soils.

5. The nature and distribution of soils in the State generally will be clear from the above sketch of its physical configuration. It will only be needful here to make a few additional remarks on the soils in the northern and eastern portions of the State which contain the bulk of the Khalsa villages. In the portion of the Anupgarh and Suratgarh Tahsils, which lies to the south of the Ghaggar bed, the soil consists of a more or less continuous succession of ridges (*dhora* or *tiba*) of light sand, between which are valleys locally known as *johul* or *dabri* of firmer and, in some places, of loamy

soil These valleys occasionally expand into level plains of considerable extent, and are then known as *tals* The soil on the summits of the ridges is generally too light for tillage, but with suitable rainfall fair crops can be raised on their sides *(utar)* and especially in the valleys which benefit by the drainage of rain water from the sand hills Too heavy rain will, however, wash away the seed sown on the sides of the ridges, and the *utar* fields, being of lighter soil, cannot stand continuous cultivation for so long a period as the *johul* or *tal* fields, the soil of which is firmer

Immediately north of the Ghaggar, in the Anupgarh and Suratgarh Tahsils, the soil is light and sandy, but more level than that to the south, and it becomes more level towards the north The soil in the northern portion of the Anupgarh Tahsil is locally known as *baggi* It is generally level and principally consists of a light loam, which would be productive under sufficient irrigation The soil in the northern portion of the Suratgarh Tahsil is of the same kind, but although there are no sandy *tibas* the level is frequently broken by pieces of light rising soil called *maira*

Continuing northwards into the Mirzawala Tahsil the soil becomes more level *(sain)* and firmer, sand giving place to a larger admixture of loam The extreme western portion of the Mirzawala Tahsil contains some light sandy soil, and in the south eastern corner there is some *maira* land, but more than half the Tahsil, and especially the northern and north eastern portion, is a level expanse of good firm loam *(kati)*, which in places becomes clayish A few low sand hills are occasionally met with The loamy soil stretches right across the upper portion of the Hanumangarh Tahsil to the borders of the Hissar District, and improves, if anything, as we go eastward It is of a yellowish tinge and is locally known as *pili mitti* It retains moisture well and with proper irrigation it would be capable of producing the highest classes of crop In a few villages in the north east corner of the Hanumangarh Tahsil, there is some lightish uneven *maira* soil, the relics probably of an ancient drainage line locally known as "Naiwal" From north to south the soil in the Hanumangarh Tahsil gradually becomes lighter *(poli)* and more intermixed with sand, and the level is broken here and there by sandy *mairas* of gentle slope In fact, the Hanumangarh Tahsil on the east exhibits much the same gradations of soil from south to north as do the Suratgarh and Mirzawala Tahsils on the west

The loamy soil of the upper portions of the Mirzawala and Hanumangarh Tahsils, although intrinsically superior to the lighter and more sandy soil to the south, is perhaps less adapted to the scantiness of the local rainfall Less moisture is requisite for germination and growth in the latter than in the former, and in consequence, a crop of some sort will grow in the sandy soil on a scanty rainfall, under which the heavier loam would remain unsown, but with a fair supply of moisture, the latter will give crops far supperior to anything that can be taken from the former , owing, moreover, to the greater evaporation from light soil, more frequent falls of rain are required to renew the supply of moisture than is the case in a loamy one The better class of cultivators in the loamy tracts recognise this fact by giving a preliminary ploughing *(par)* to such lands in February or March The result is that the light sandy particles, carried by the summer dust storms, are caught in the plough ridges and mixing with the loam render the soil lighter and more friable *(poli)* In the tracts of sandy loam

immediately north of the Ghaggar in Tahsils Suratgarh and Hanumangarh the level loam is often overspread by drifts of sand, and its capabilities are temporarily reduced in consequence; this is frequently caused by the wind carrying off the lighter surface soil from an abandoned field leaving the hard subsoil exposed.

In the Ghaggar bed for its whole length from Anupgarh to Hanumangarh the soil is a hard loam, which increases in hardness and consistency till the centre of the bed is reached. The admixture of clay increases as we go eastward; and the soil becomes of a darker tinge. About Hanumangarh the action of the floods in carrying off the silicious particles has made the soil of the Ghaggar bed almost entirely a clay which cannot be cultivated unless well moistened by floods. The area of the Ghaggar bed is known as the *nali*, while the tract on either side of it as *dhora* or *rohi*, according as the quantity of light sandy soil is greater or less.

The portion of the Hanumangarh Tahsil south of the Ghaggar is generally a level plain of lightish loam broken here and there by gently sloping sand hills, which gradually develop into a succession of sandy ridges with loamy valleys between as the limit of the central sandy tract is approached on the southern border of the Tahsil.

The north-eastern portion of the Nohar Tahsil, including Nohar itself, is fairly level, and the soil is generally a sandy loam interspersed with bits of rising ground of lighter soil, and this continues into the northern portion of the Bhadra Tahsil, the soil becoming more level and the quantity of loam greater towards the east. In the south-western portion of the Bhadra Tahsil we come to the neighbourhood of the central sandy tract, and the soil here consists of light sandy ridges of considerable height with *tals* of firmer but still sandy soil between. The *tals* are, of course, preferred for cultivation; the firmer soil is not, so easily caught and carried away by the wind, the rainfall sinks more *in situ* in the *tal* than on the sides of the ridges from which it drains off, and thirdly it is easier to work the plough on the level *tal* than on a sloping ridge. East of this, the sand ridges become less frequent and of less height and the soil more level and with more loam. In short, in the eastern portion of Bhadra to the south of the Canal the soil is a good loam well adapted by a sufficient admixture of sand to the conditions of the local rainfall; it is generally level with the exception of a few bits of lighter rising ground here and there. In the south-eastern corner on the Rajgarh border the soil is more loamy than elsewhere. South and west of this, the soil of the Rajgarh Tahsil gradually becomes less level and the sand hills are more frequently met with and are of a great height. This Tahsil may be described as a tract of light, uneven sandy soil, but the *tibas* or sand ridges are less high and more cultivable than in the central sandy tract to the west, and extensive *tals* of firmer soil are common.

Rainfall.

6. In the entire absence of artificial irrigation, and with an almost imperceptible area capable of being benefited by natural floods, the rainfall is, of course, the natural factor of prime importance in the agricultural economy of the State. Though primarily needed for the grain crops, it is scarcely less necessary for the grass crop on the quality of which the large number of cattle in the State, forming one of the principal parts of the wealth of the rural population, is almost exclusively dependant. In addition to

The more easterly *chaks* were generally taken by such persons, but it was difficult to dispose of those situated more to the west. In many cases in Tahsil Suratgarh and in Tahsil Anupgarh (which was not settled till St. 1947) the *chaks* were finally leased to the chaudhris of the villages from which they had been originally excluded.

The persons with whom a *chak* was settled were practically lessees of the *chack* for a term of years, and they received a *patta* or lease containing the conditions on which they held. As lessees they were not to collect rents at rates in excess of those used in framing the assessments of villages in the subdivision of the Tahsil in which the *chak* was situated. The assessment of the *chak* itself which was payable by the lessees, had been framed at rates slightly lower than the village rates. In the above as well as in other respects the lessees of the *chaks* were in the same position as the chaudhris or farmers in the villages, they had a small initial profit on the area cultivated at the time of the lease, but in order to meet the progressive assessment of the *chaks* year by year and to secure a margin of profit for themselves they would have to get a certain area brought under cultivation each year.

Though there was apparently no clear and definite decision on the point I imagine that as between the farmer or chaudhri of a village and the lessee (*girinda*) of a *chak* there was this difference that whereas no landlord claim of any sort was conferred on the chaudhri or village farmer it was contemplated that the lessee (*girinda*) of a *chak* would have such a claim in order to provide him with a greater inducement to develope cultivation in his *chak*. Such claim was subject to limitations as described above and was to be of a temporary nature at first and to ripen into a permanent one if during the period of his lease the lessee fulfilled the conditions imposed on him. At all events it is pretty clear that many Punjab Sikhs who have taken *chaks* or shares thereof look upon themselves as holding what is practically proprietary right in the soil of these *chaks* subject to the payment of the Raj assessment.

The degree of success which has attended the above measures for increasing the cultivated area will be noticed below.

32. For the purposes of assessment the Tahsils in which the Khalsa villages were situated in continuous or fairly continuous blocks were divided into circles in the orthodox manner.

Assessment circles or sub divisions

Excluding the Nali area which was not dealt with in the Summary Settlement the Hanumangarh Tahsil was divided into three circles, of these, two lay to the north of the Nali area and one to the south, of the two former, the northern one, called the First Circle consisted of the tract of firm loamy soil which has been already described, and the southern one, called the Second Circle, of the tract of lighter but still loamy soil to the north of the Ghaggar. The part of the Tahsil south of the Ghaggar was called the Third Circle.

The Suratgarh Tahsil was divided into two circles, one called the *Utaradh* consisted of the tract north of the Ghaggar, and the other, called *Dhora*, the sandy tract to the south of it. The Nali or Ghaggar area was as in Hanumangarh excluded from the Settlement. After the completion of the Settlement a new Tahsil was constituted with its head quarters at Mirzawalah and it consisted of the

western portion of the First Circle in the Hanumangarh Tahsil, of two villages from the Second Circle and the northern half of the *Utaradh* circle of Suratgarh.

As already noticed the Anupgarh Tahsil was not settled till St. 1947, (1890 A. D.) and then only for two years. Excluding the Nali area, it was divided into the Baggi circle to the north of the latter, the Dhora I circle consisting of the eastern part, and the Dhora II circle of the western part of that portion of the Tahsil which lies to the south of the Nali area.

The Bhadra Tahsil was divided into the Tal circle which included the loamy tract on the Hissar border, the Tal Tibba circle in the centre, which included villages in which there was more sandy soil, and the Tibba circle on the west which consisted of more purely sandy soil. The Rajgarh Tahsil in which the soil is generally uniform was not divided into circles.

The pitch of the assessment and the revenue rates.

33. In fixing the rates to be used for calculating the fixed assessments of villages much importance appears to have been attached to the amount of the collections for the decade previous to the Settlement and to their incidence on the area cultivated at Settlement, but little attention appears to have been paid to the rent or revenue rates prevalent in the adjacent British districts.

As a general principle it appears to have been assumed that because the State had prior to the Settlement nominally not realized anything from the cultivators on account of waste land that therefore the previous collections had been all along paid by *the cultivator from the profits of cultivation and that* he had enjoyed the full income from the waste without having to pass on any share to the State; this led to the further assumption that the incidence of former collections upon the area cultivated at Settlement was a more or less close approximation to the rate at which the cultivator could fairly be called upon to pay for his cultivated land in addition to meeting an assessment on the waste area which he had hitherto enjoyed free of charge.

Both assumptions were obviously incorrect; because the State had not chosen to levy anything from the cultivator under the express form of an assessment on account of profits from waste, it did not in the least follow that as a fact the cultivator did not pay a considerable portion of the amounts levied from him under whatever name from the profits which he made out of the waste, and especially from his cattle which grazed there. In dealing with previous collections care seems to have been taken to confine the process to collections connected with the land and to exclude others, such as customs duties, fines and a large variety of cesses of other kinds; but the above remarks apply even after such exclusion is allowed for. It thus came about broadly speaking that in addition to the average amounts which had been collected in previous years the farmers or thekadars had to pay an assessment on the whole waste area occupied or unoccupied after deduction of one-third in Tahsils Bhadra and Rajgarh and one-fourth in the Suratgarh Nizamat.

The rates used for calculating the assessments do not appear moreover to have been tested by applying them to particular villages and considering whether the villages would in view of their condition pay to the farmers the sums so calculated. The rates used will be found in full detail in the vernacular Settlement Report and in Settlement II appended to this Report.

In Tahsils Bhadra and Rajgarh the rate on cultivation varied between 5 annas 3 pies per Bikaneri bigha = (.37 acre) in the eastern part of the Bhadra Tahsil to 4 annas 3 pies in the Rajgarh Tahsil generally. The rate for occupied waste varied from 9 pies to 6 pies and for that which was unoccupied from 6 pies to 3 pies per bigha

In the Hanumangarh Tahsil the rates for cultivation in the three circles taking them in order from the north, were respectively, 4 annas 6 pies, 4 annas 3 pies, 3 annas 9 pies, per pakka bigha, ($\frac{5}{8}$ acre) The rates for occupied and unoccupied waste were 1 anna, 9 pies, 6 pies, 7 pies, 6 pies, 4 pies per bigha respectively

In Suratgarh the rates for the two circles recognised *Utaradh and Dhora*, were for cultivation 2 annas 9 pies, and 2 annas 3 pies, per Bikaneri bigha, for occupied waste 9 pies and 6 pies and for unoccupied waste 5 pies and 3 pies

Comparison with rent rates in the Hissar and Ferozepur Districts

34 In comparing these rates with those prevalent in the Hissar and Ferozepur Districts it has to be borne in mind that they are paid by cultivators whose status is that occupied by the tenant rather than the proprietor or *biswadar* in British territory The tenant pays rent to the proprietor who pays revenue to Government, and the rent always exceeds the revenue, in fact as a broad principle the revenue is half the rent The assessment rates paid in Bikaner should, therefore, be compared with the rent rates prevailing in the adjacent British districts rather than with the revenue rates

For comparison, I take the rent rates prevailing in the Hissar District in 1886 87 shortly after the Summary Settlement now under discussion In a small tract adjoining the Bikaner border and nearly due east of Rajgarh the average rent rate was 6 annas 2 pies per acre which is equivalent to 2 28 annas per Bikaneri *bigha*, in a tract to the north of this, but still adjoining the border and extending up to the boundary line of the Rajgarh and Bhadra Tahsils, the average rent rate in the case of villages held by non-cultivating proprietors was 8 annas 10 pies per acre, equal to 3 28 annas per Bikaneri *bigha*, and the rents in these villages were more or less of the nature of full competition, rents being paid for cultivated land held for a succession of years by tenants at will whether cropped in any particular year or not The rate for cultivated land used in calculating the fixed assessment in Tahsil Rajgarh was as stated above 4 25 annas per *bigha* or nearly one anna more than the highest of the two averages given above which apply to tracts very similar in soil to the Rajgarh Tahsil but if anything less sandy

The average of full or competition rents paid by tenants at will for land held continuously in a tract adjoining the Bhadra Tahsil south of the canal was 11 annas 1 pies per acre, equal to 4 19 annas per Bikaneri *bigha* In a tract north of this again the average gives 4 9 annas per *bigha* but only two of its villages adjoin the Bhadra Tahsil, the bulk of them lie much further eastward towards Hissar, so that the comparison is not in this case a satisfactory one

In one part of the Fatehabad Tahsil adjoining the north east corner of the Bhadra Tahsil and containing the village of Bhuddwas the average rent rate was 8 annas 1 pie per acre, equal to 2 98 annas per Bikaneri *bigha*, but the rents in this case were not of the nature of full competition rents and the soil of the

tract in question was perhaps somewhat more sandy than that in the adjoining Bhadra villages.

In the portion of the Sirsa Tahsil lying to the south of the Ghaggar and adjoining the northern portion of the Bhadra Tahsil the average rent rate at the Settlement of 1882, was about 5 annas per acre, which gives 1·85 annas per Bikaneri *bigha*, but the rents in this case again were probably not full ones and the rent rate rose after the Settlement, but was probably even in 1884, less than 2·5 annas per Bikaneri *bigha*. It will be clear that the rate for cultivation used in Tahsil Bhadra, *viz.*, 5 annas 3 pies per *bigha* was considerably in excess of the average full rent of cultivated land at that time prevalent in the adjoining portions of the Hissar District.

Excluding the southern portion of the Sirsa Tahsil, for which I have no statistics at hand, rent rose between 1886-87 and 1890-91 in all the other tracts of the Hissar District dealt with above with the exception of the tract in the Fattehabad Tahsil. The rise has, however, been slight and the average rent rate for cultivated land is in all cases still below the rates used for assessing cultivated land in the adjacent portions of the Rajgarh and Bhadra Tahsils at the Summary Settlement of St. 1942. The rents which we have been comparing with the latter rates are, it must be remembered, the result of a competition for land and are paid in a tract more developed and enjoying greater political and economical advantages than the adjacent parts of Bikaner. The rainfall and the soil do not probably differ much, but it is clear that to assess cultivated land in Bikaner at a rate higher than the average competition rent paid in adjoining British tracts is a proceeding not free from danger and in a succession of bad years likely to lead to disaster. As a fact, however, the seasons have been fairly favourable in the Eastern Tahsils since the Settlement and the assessments, as noticed below, have been paid.

The only two other Tahsils which adjoin British territory are Hanumangarh and Mirzawala which march with the Rohi tract of Tahsils Sirsa and Fazilka. In 1886-87 a large area in the Sirsa Rohi was paying over 8 annas per acre as rent, and the average rent rate for the whole Rohi tract was 8 annas per acre, at the time of Sirsa Settlement in 1882. The average rent rate in this tract was therefore probably over 8 annas per acre (=5 annas per *pakka bigha*) in 1886-87 and this includes rents which were probably not of the nature of competition rents. Had the first and second circles of Hanumangarh which adjoin the Sirsa and Fazilka Rohi been more fully developed and had the rainfall been less precarious the rates of 4 annas 6 pies and 4 annas 3 pies, used for these two circles would have been, I think, fair; as it was I am of opinion that they were too high to be used in calculating a fixed assessment to be paid by farmers for land which might, not improbably be abandoned during the period of their farm and so thrown uselessly on their hands unless they consented to allow them to be cultivated at a rate lower than that at which they had been assessed.

The Suratgarh Tahsil does not anywhere adjoin British territory. The assessment rates there used for cultivated land can only be compared with those used in the Hanmangarh Tahsil. The Suratgarh rates were, as already stated, 2 annas 9 pies per bigha in the *Utaradh* circle lying to the north of the Nali area and 2 annas 3 pies per bigha in the *Dhora* circle to the South. These rates are taken on the Bikaneri bigha, the equivalent rates on

the *palla bigha* in use in the Hanumangarh Tahsil would be 4.64 annas and 11 annas. The Utaradh circle rate is thus higher than the rate of 4 annas 3 pies used in the somewhat similar, if anything slightly superior, second circle of the Hanumangarh Tahsil and also than the rate of 4 annas 6 pies fixed for the first circle in Hanumangarh which is certainly superior in regard to soil and perhaps in the matter of rainfall also. The Dhora circle rate similarly is higher than the rate of 3 annas 9 pies in the third circle of Hanumangarh, where the soil is more level and less sandy. Prima facie the rates should, so far as rainfall is concerned, decrease from east to west, and I know of nothing in the circumstances or physical features of the Suratgarh Tahsil, which would justify a higher rate for cultivation in that Tahsil than in Hanumangarh. This illustrates the danger of trusting to the amount of average previous collections without reference to general modifying considerations.

It will be seen from the above comparison that the assessment rates for cultivation used in Tahsils Rajgarh, Bhadra, Hanumangarh and Suratgarh resembled the majority of the rents paid in the Hissar District, with which they have been compared, in being intended to be paid, as the latter in fact were, by cultivators holding their land for a succession of years and paying continuously whether in any particular year they obtained a crop off it or not. The analysis made will probably have made it clear that the assessment rates certainly did not err in being too lenient.

It is difficult to give any opinion as to the suitableness of the rates for waste land. Those for the unoccupied waste when the deduction made from the total waste area is taken into account, were, looking to the quality of the grazing and the large profits made from cattle especially in Nizamat Suratgarh, probably fair in themselves, but the weak point in the assessment of the waste, in tracts where there were large areas of unoccupied waste was that the farmers who were responsible for the payment of that assessment, were not* allowed to realize from the cultivators practically any portion of the profits which the latter made from their cattle or in other words from the waste, the only method in which the farmers could make such land pay them was by getting it brought under cultivation and this, of course, could only be done gradually.

The working of the settlement in Nizamat Suratgarh.

35. The working of the Settlement from a fiscal point of view is exhibited in Statement I, attached to this Report. The demand fixed at Settlement is in every case represented as 100 and the average annual demand and collections from Settlement up to end of St. 1949 (March 1893), are shown in the form of percentages upon that initial demand. The actual demand and collections of the year, St. 1949 are also shown by the same method. The result in the three Tahsils of the Suratgarh Nizamat settled in St. 1943, is that the average demand has been 9 per cent above and the average collections 21 per cent below the initial demand fixed at Settlement. The increase in the demand is chiefly due to the progressive assessments. As already stated, it was originally intended to make the assessments progressive by annual increments to be imposed in each of the five years for which the Settlement was made, but this intention was abandoned and the increments stopped after St. 1945, and the period of the Settlement has been extended till a new assessment can be made. It will thus be seen that the assessments fixed have not by any means been fully realized in the Suratgarh Nizamat.

* This was altered to some extent in St. 19[illegible] but the relief given was inadequate.

The tract has since Settlement suffered from a series of bad seasons causing distress which at one time deepened into something very like famine, and a large number of the cultivators, always somewhat insecurely attached to their villages in such a tract, have left for parts where there was a prospect of easier means of livelihood for men and cattle, and this emigration would in all probability have taken place quite irrespective of the lightness or severity of the assessment. In addition to this during the years St. 1947-48 the revenue administration of the Nizamat appears to have been unsatisfactory whatever it may have been before, and supervision over the Subordinate Revenue staff who appear to have had a large share in the collection and handling of the revenue was especially lax. Neither nature nor the frailty of man have thus allowed the Settlement a fair opportunity of showing how far it was suited in fiscal and other respects to the particular circumstances of the tract and it would be unfair to definitely lay the blame of whatever failure may have occured to defects in the Settlement. At the same time it is in my opinion beyond question that a somewhat hard bargain was driven with the thekadars or farmers, and it is they rather than the actual cultivators who have suffered. The farmers or chaudhris of a village were responsible for a fixed assessment, made up of a sum calculated by applying a certain rate to the then existing cultivated area of the village, and of another sum similarly calculated but at lower rates on the whole waste area of the village after deducting one-third of that portion which was unoccupied. On the area cultivated at Settlement they would not hope to make any profit since they might only collect rent from it at a rate not exceeding the rate at which the sum assessed upon it had been calculated, and if at any time the cultivators should abandon any portion of it the farmers would be still responsible for the assessment although their receipts would be by so much diminished. To meet the assessment on waste the farmer's initial assets were grazing fees from outside cattle, and in a large number of villages receipts from *sajji*, but these were generally far from equal in amount to the waste assessment and the farmer was not allowed to secure any share in the profits which cultivators made from cattle grazing on the waste by levying grazing fees or otherwise.* As already remarked the only way in which he could make the waste pay was by getting it cultivated, but this could not be done at once and was entirely contingent on the occurrence of a succession of years of good rainfall ; and further, even when cultivation had been extended by waste land being broken up the increase in the farmer's receipts would be more or less completely swallowed up by the increased amount, which he would have to pay to the Raj under the progressive assessment. Statement I shows that in the last year St. 1949 the collections were considerably in excess of the demand fixed at Settlement though generally below the average demand since Settlement. The excess is due to the collection of the arrears of past years. These the farmers, or in a large number of cases, the subordinate Revenue Staff collected from the cultivators, and the farmers have made no profits from these collections. In regard to the demand and collections in respect of the current year accounts show that in the Utaradh circles of Mirzawala and Suratgarh, where cultivation has decreased considerably since Settlement, the farmers have generally paid to the Raj a good deal, and in many cases far more than they collected from the cultivators even with the addition of *sajji* receipts. The difference represents so much out of their pockets.

*This was somewhat modified at least in theory in St. 1945, but not to an adequate extent.

36 In the Eastern Tahsils of Nohar, Bhadra and Rajgarh 99 per cent of the demand fixed at Settlement in St 1942 has been on the average collected each year, and from a fiscal point of view the Settlement has thus worked very well even though the assessment rates on cultivation appear to have been dangerously high, looking to the precarious nature of the rainfall That the demand has been collected in full is due to the fact that the drought and scarcity prevalent in recent years over large parts of the State does not appear to have spread to these Tahsils , every year there has been, if not a plentiful, at least a sufficient rainfall, and the consequence is that in place of a diminution in the cultivated area as is the case in the Suratgarh Nizamat, there has been a considerable increase as shown in Statement I Another reason for the satisfactory state of the collections is that in place of the chaudhris being the sole farmers as was generally the case in Suratgarh, most of the other cultivators were joined as co sharers in the farm, and thus any loss arising from the farm has been lessened by being spread over a larger number of individuals But even so several of the Rajgarh villages are in a somewhat depressed and broken down condition, and have suffered from an emigration of cultivators, and in this Tahsil and Bhadra the cultivation rate, which measures the severity or lightness of the assessment so far as the individual cultivator is concerned has on the whole pressed somewhat heavily

Tahsils Bhadra and Rajgarh

In partial proof of this, it may be noticed that the average rents which cultivators were obtaining in St 1949, in the Tal, Tal Tibba and Tibba circles of the Bhadra Tahsil for land which had been unoccupied waste at Settlement but had been subsequently brought under cultivation were 4 annas 2 pies 3 annas 3 pies and 3 annas 4 pies per *bigha* respectively, while the assessment rates used at Settlement for cultivated land in these three circles were 5 annas 3 pies, 5 annas, and 4 annas 9 pies respectively The rents are probably not full competition rents but the farmers no doubt tried to get as much as they could, and they show that the assessment rates in fact exceeded the rents which cultivators were willing to pay for newly cultivated land In the remaining tracts of the State which were settled in St 1942 43, the assessments appear to have worked well, the collections in no tract averaging less than 96 per cent of the demand fixed at settlement The rates in these tracts varied from village to village so that it is difficult to analyse them

37 The exclusion of excess waste from the village areas at Settlement and its formation into *chaks* or blocks which were leased to outsiders has resulted no doubt in an increase in the revenue, but the working of these *chaks* has not been very satisfactory, either from the point of view of the State or of the lessee The chaudhris of the villages, whence the *chaks* were cut, and in Tahsils Mirzawala and Suratgarh there were few in which this was not done, complained loudly of the diminution of their village areas, but there cannot be any doubt that the State was perfectly entitled to exclude waste areas from the villages , the chaudhris as already shown at length, had no landlord claim over any land, and the State on the other hand had pretty continuously asserted and exercised such a claim to the unoccupied waste

The Chaks

There appears at first to have been a strong demand on the part of cultivators from the adjacent tracts of the Punjab and the Cis Sutlej States for the

chaks which had been formed, and in nearly all cases leases were given. The demand was of course strongest for those *chaks* which were near the Sirsa and Ferozepur borders in the north-eastern portion of the Nizamat; for those situated more to the west there was a less strong demand and many of them had to be settled with the cultivators of adjacent villages. The development of the *chacks* once taken up depended almost entirely on the nature of the subsequent seasons. When these turned out bad in succession they began to be abandoned. In the majority of cases the lessees never settled in these *chacks* permanently, they came after the rains to sow the Kharif and perhaps some Rabi and to pasture their cattle; when the harvest had been reaped and the grain prepared they would return to their original village. When for several years there was no rain or only a scanty amount, in the case of some *chaks* none of the lessees came near them nor made any arrangement for the payment of the State revenue; in the other cases some only of the co-sharers in the lease would come and pay their share of the revenue or some of it while the share of the absentees would accumulate as arrears. Sooner or later the absentee's share in the lease would be cancelled and transferred to some one else who was willing to take it and pay either the whole or a substantial part of the arrears due from the absentees. In many cases where no new lessee was forthcoming the whole *chak* or a share thereof as the case might be, would be held under direct State management until such time as a lessee or lessees were found. The result has been that in many cases it is now very difficult to ascertain who in fact are entitled as lessees to hold the *chaks* as no clear records of the changes effected from time to time appear to have been kept.

Under the circumstances sketched above any increase of cultivation in the *chaks* was not to be looked for, and Statement I in fact shows that it has as a general rule decreased. This is due to the fact that at the time of Settlement there were within most of the *chaks* a considerable number of fields which had been held for various periods by residents of the villages whence the *chaks* had been cut. These fields they were allowed to hold under the lessees of the new *chak* but as a fact they generally preferred to abandon them and the decrease thereby occasioned was not and owing to adversity of season could not be made good by breaking up land in the hitherto unoccupied waste.

In view of the above considerations, I fancy that but very few of the lessees of *chaks* have, so far from obtaining any profits from their leases realized from the *chaks* even enough to meet the assessments imposed together with the arrears, due from previous lessees, which they paid on entry; against this must be set the fact that the assessments of the *chaks* have not been fully paid up as a very general rule, but even so I imagine that the taking of a *chak* on lease in the Suratgarh Nizamat has not hitherto been a very profitable speculation.

The fact is that if outsiders are to be induced to take up and cultivate waste land at a distance from their present abodes in a tract which is comparatively rainless and in which the State has not expended any capital in providing means of artificial irrigation, such as canals, it can only be done by allowing them to have the land on extremely easy terms for a considerable period, bearing in mind that if a lessee is to settle permanently in a *chak* he has to expend a considerable amount of capital in erecting buildings, digging tanks, &c. To make him pay a heavy fine on entrance on account of arrears due from previous defaulting lessees is not the best method of inducing him to settle permanently. The

surprising thing is that persons are still found willing to take up *chaks* or shares thereof on payment of such fines which are often large in amount One explanation of this seems to be that the area available for grazing in the adjacent British districts, especially in Ferozepur, appears to be contracting very much as increase of population accompanied by extension of cultivation takes place and many of the *chaks* appear to be taken up for grazing rather than for permanent cultivation At the same time increase of population is causing a continuous division of holdings, and they are in consequence becoming too small to support the cultivators dependent on them The latter are therefore anxious to obtain more land wherewith to eke out the produce of their present holdings, and are willing to pay considerable sums for such land on which, however, they do not intend to reside permanently To induce them to do so and to abandon their present permanent habitations would require that they should be able to procure the new land on very easy terms

38 A few remarks are needed in regard to the Nali area Up to A D 1899 the whole of it had been in a special way under the direct control and management of the Raj by its local officials Except in one or two cases no villages had been founded in it and no chaudhris had been appointed to settle villages The cultivation in the area had been carried on by cultivators from villages situated at a greater or less distance from its banks The Raj collected its dues harvest by harvest In Tahsil Hanumangarh these were for the Rabi one fourth share of the produce in addition to a half seer per maund of the total produce on account of expenses, also Re 1 per plough used, called *jowari* All land cultivated for the Kharif paid 6 annas per *pakka bigah*

The Nali area

In the Suratgarh and Anupgarh Tahsils the Nali area is never flooded and there is in consequence usually very little Rabi for whatever there was the Raj took from the cultivator one fourth share of the produce Land cultivated in the Kharif paid 3 annas per Bikaneri bigah in the Suratgarh Tahsil and 2½ annas in Anupgarh Tahsil

In July 1889 Munshi Sohan Lal made proposals for the settlement of this area which, as already remarked, had been exempted from the Summary Settlement of the Khalsa villages His proposals were in brief to include certain suitable amounts of the area within the boundaries of the villages near the banks, and to divide the rest into blocks or *chaks* which were to be leased as had been done with the *chaks* cut from the Khalsa villages at the Summary Settlement The whole Nali area of each village and of each *chak* was to be assessed at one rate without regard to cultivation or waste The rates to be used were to increase progressively from west to east, *i e*, from Anupgarh to Hanumangarh In that portion of the area situated in the neighbourhood of Hanumangarh and to the east of it which was liable to be flooded, in addition to the assessment by the above rates an additional amount was to be levied on land actually cultivated with the aid of floods in any year at rates varying with the out turn of the crops from Rs 3 to 8 annas per *pakka bigah*

The arrangements were approved in March 1890 and the rates for the dry assessment were fixed at 6 pies and 8 pies per *bigah* (Bikaneri) in Tahsils Anupgarh and Suratgarh respectively, and at 9 pies, 1½ annas and 2 annas per

pakka bigah in Tahsil Hanumangarh, the rates increasing from west to east. Both the Anupgarh and Suratgarh rates were, it will be observed, higher than the lowest rate in the Hanumangarh Tahsil to the east. It was decided that the Settlement so made should last for 10 years. The carrying out of the arrangements proposed was taken in hand and some progress had been made when a new Nazim was sent to Suratgarh. He appears for reasons as to the sufficiency of which it is not needful to enquire here, to have formed an opinion adverse to the proposed method of Settlement. At the same time many of the chaudhris of the villages bordering on the Nali area who either imagined or pretended that they had some claim over it objected to the leasing of the *chaks* to outsiders. It was finally decided in April 1891 to stop the carrying out of the arrangements which had been proposed, to postpone any Settlement of the Nali area, and to revert to the old system of direct management by collecting a share of the produce in the Rabi harvest and cash rates on area actually cultivated each year in the Kharif as had been done before.

Previously to the above decision possession of some of the Nali *chaks* in Tahsil Hanumangarh had already been given to intending lessees and the limits of such portions of the Nali area as were to be included under the original proposals within the boundaries of villages on either side of it had been more or less definitely marked out. There seems to have been no clear decision as to whether these proceedings were to hold good under the arrangements finally adopted but the intention seems to have been that they should. As a matter of fact the lessees mentioned above or some of them are still in possession though they have not settled permanently, but the boundaries of their *chaks* cannot now be accurately traced either on the ground or in any map or other record, as far as I have been able to discover. The limits of the Nali area proposed to be included within villages are more or less definitely recognised and can be probably more or less accurately identified. I have no statistics showing what the result of the working of the arrangements finally adopted in the Nali has been. In regard to the reasons for not carrying out the original proposals which were entertained it may be said without much hesitation that the claims of the chaudhris of the adjacent villages to portions of the Nali area were groundless; they had no landlord or soil claim even in their own villages, and even if they had it is pretty clear that the State had all along in a special manner kept the management of the Nali area in its own hands. The principal reason for the adverse opinion which the Nazim of Suratgarh formed of the proposed arrangements appears to have been based on the fact that in 1890 there were unusually heavy floods in the Ghaggar, which enabled a large area to be cultivated for the Rabi. He thought and no doubt rightly that the receipts of the Raj in that particular year would be far larger under the old system of *batai* collections than under that proposed and upto that time approved. The treatment of the Nali area in recent years is a somewhat curious incident in the Revenue history of the State, the papers regarding which are unusually voluminous and intricate.

Tahsil Anupgarh.

39. As already mentioned the tract included in this Tahsil was given in *patta* to Maharaj Lal Singh in St. 1928 and became Khalsa on his death in St. 1945, A. D. 1888. The Tahsil was settled on much the same plan as had been employed for the other Khalsa tracts in St. 1942-43. The whole area was measured between A. D. 1888 and 1889,

assured to the landlord in good and in average year it is a matter of great doubt whether the ordinary chaudhri would save the balance of a good year to meet the deficiency of a bad one. Experience seems to show that as a rule artificially created landlords do not act in this manner. My impression is that unless a very light assessment were imposed most of the chaudhri landlords in the Suratgarh Nizamat would be at the end of a few years either hopelessly in arrears or else expropriated in favour of outsiders to whom the village had been transferred by forfeiture and sale.

I cannot therefore recommend for this tract a system whereby the chaudhri would be made solely responsible for the payment of a fixed assessment. This system if adopted in Tahsils Rajgarh and Bhadra would not be open to the second of the objections noted above, as there population is more fixed and the cultivators more attached to their villages, but, as has been already noticed, in most of the villages in these Tahsils practically all the cultivators became joint farmers during the currency of the Summary Settlement and jointly responsible for the payment of the assessment. If the principle of fixed assessment is to be maintained in these two Tahsils the second of the two systems enumerated above will have to be adopted. The matter will be dealt with below.

46. It is now necessary to consider the suitability of that system to the Suratgarh Nizamat. It consists in converting the whole body of village cultivators into an artificially joint body with joint rights and liabilities measured in the case of each individual cultivator by the amount of land in his separate possession. In para 43 have been detailed the circumstances under which it cannot be expected to work well and these circumstances are completely existent in the tract under discussion. Village population is not fixed and is liable to great fluctuations in times of scarcity. Tribal and clannish sentiment likely to attach cultivators to their villages is practically non existent, neither is land so valuable nor is its produce so certain as to induce the cultivator to stay and brave out a succession of bad seasons or even one or two. If then a fixed assessment were imposed and distributed among those cultivating land in the village at the time of Settlement in proportion to the area held by each, it would be very probable that at the first occurrence of a period of two or three years of short rainfall the distribution would have to be made afresh in order to adapt it to the new state of things caused by the emigration of former cultivators.

The Second System applied to Nizamat Suratgarh.

The system would involve, as already stated, the conferment of a joint landlord right in the village waste on the whole body of cultivators resident at the time of Settlement, but waste land is so extensive that it has little value in a proprietary sense, and the bestowal of such a right would supply little or no inducement to the village body to hold together in times of scarcity and meet the fixed assessment imposed upon them.

Again a very considerable portion of that fixed assessment in the case of any particular village must of necessity in a tract where waste is so abundant be calculated with reference to the area of waste included in the village boundaries, in other words it will be imposed on account of profits made from the waste. Now where waste is so extensive it by no means follows that the area cultivated by any individual will be a fair measure of the profits which he makes from the

village waste or to put the matter in a different light, of that quota of such portion of the assessment as is due to the waste which he may be fairly called upon to pay. To take the case of a Jat and a Rath residing in the same village; the Jat will cultivate a fair area of land and will also pasture cattle in the waste and realize some profits from them; the Rath will cultivate a far smaller area in all probability but will at the same time pasture a larger number of cattle and make a larger income from them; but since the whole fixed assessment, without distinguishing the portion imposed on account of the cultivated area of the village and that imposed on account of the waste, is distributed in proportion to area held, the Jat will in reality pay a larger proportion of the latter than the Rath though the latter makes more out of the waste. Such a distribution would thus be of the nature of a fine on cultivation and would amount in many villages to making the cultivator pay revenue on account of unoccupied waste really due from a noncultivating cattle breeder who used the waste far more than he did. The inequality could to some extent be remedied by compelling all cultivators to pay grazing dues (*bhonga*); the total amount of these in any given year would be set off against the fixed assessment and the balance only distributed in proportion to area held in individual possession; but this course would occasion further complication in the village accounts.

On the whole then I do not think that the second or as it may be called the joint village system would be likely to work well or smoothly in the Suratgarh Nizamat or be likely to give good results.

The system proposed for assessing cultivated land in villages in Nizamat Suratgarh.

47. One main result of the above discussion of the suitability of the two systems under which a fixed assessment can be imposed in the Suratgarh Nizamat has been to bring out the conclusion that a fixed assessment is itself unsuited to the tract in question, mainly because population is fluctuating and the amount of land held in cultivating occupancy varies very considerably from time to time. We found that for this reason it was impossible that the chaudhri landlord would be able to pay a fixed assessment for a term of years without distinction as to the quality of the season unless it were pitched very low, and that for the same reason a fixed assessment for the payment of which the whole village would be jointly responsible would scarcely be expected to work well. In short it seems necessary as a general rule to abandon the principle of fixed assessment in this tract, certainly as regards assessment on cultivation. My opinion in this matter is influenced far more by a consideration of the fluctuating nature of the population than by that of the precarious nature of the rainfall and agricultural results. Were population more fixed and denser, in spite of the latter disadvantages I should certainly advise a fixed assessment to be distributed as found most suitable over the entire cultivating body of a village. The principle of fixed assessment being abandoned it becomes necessary to consider what system of collecting the land revenue is most suitable. On the whole I am of opinion that the system under which the State generally collected its revenue before the Summary Settlement, *viz.*, by a rate on area held and cultivated was in principle far more suitable to the tract than a fixed assessment; and the old system had no doubt been found by actual experience to be the most workable one.

Whatever system is adopted the revenue collected under it from year to year should fluctuate, not with the out-turn of the harvest nor with the area

actually sown but with the amount of land held by each individual cultivator whether cultivated in any particular year or not

The system which appears to me suitable is as follows No one would be *made responsible for the* payment of a fixed lump assessment on the village and consequently a joint landlord claim to the village area would not be conferred *on any one , the* unoccupied waste would remain at the disposal of the State The holding of each cultivator would be assessed by applying to it fixed rates per bigah for occupied waste and for cultivation as existing at Settlement The cultivator so long as he resided in the village would be responsible for this amount and if he extended his holding by breaking up and cultivating land (*nautor*) which had hitherto been unoccupied waste, this would be regarded as permanently incorporated in his holding and would cause a permanent increase in the amount due from him New cultivators settling in the village during the term of Settlement would be dealt with on the same principles and no rightful occupier of land would be ejected by the State so long as he paid the revenue due on his holding

Abandonment by a resident cultivator of land occupied so as to absolve him from responsibility for payment of the assessment imposed on it would not be permitted within the term of Settlement If the cultivator abandoned his holding and left the village, none of the remaining cultivators would be held responsible for payment of the amount due from him The land would remain entered in his name for such period as may be most suitable probably three years in the meantime the State would be at liberty to hand over the land for intermediate occupation to any other cultivator , if the original occupant returned before the expiration of three years he would be entitled to re enter on his land on paying up all arrears due for the time of his absence which had not been realized and also compensation to the intermediate occupant for disturbance Should he not return within the three year period his name would be struck out as occupant of the land and his right to it be held to have lapsed

Cultivators who continued to reside in the village would as a general rule not wish to abandon their claim to land which they held, and even if they did to allow them to do so and to *take up fresh land in lieu of that entered in the* village papers as occupied by them at Settlement would obviously be productive of great confusion and the same would be *the case with the abandonment of* land taken up after Settlement The State has always recognised the right of the first clearer and his heirs to hold all land *brought under cultivation by him* continuously on payment of the revenue assessed, it is therefore only fair that the holders of such land should so long as they continue to reside in the village be responsible for the payment of the revenue assessed on it without interruption for at least the term of Settlement It is clear that under this system there would be a considerable reduction in the revenue received by the State in a succession of bad years when many cultivators would probably leave their villages some permanently, some for shorter or longer periods , on the other hand it must be borne in mind that should the tract be favoured with a fairly continuous succession of good or average years during the period of Settlement, certainly an unlikely contingency, in consequence of which the village population should increase considerably and cultivation be extended the State would at once reap the advantage in an immediate increase of revenue

Under the system the village chaudhris would revert to their position of official rent collectors, but of course under closer supervision than was usual in former times. Each year shortly before the Kharif harvest a field inspection or *girdawari* would be made in each village, and on the result of this a *jamabandi* or rent-roll would be prepared based on that drawn up at Settlement but modified by the inclusion of land newly broken up (*nautor*) since the previous year and the exclusion of land abandoned by cultivators who had emigrated or by the entry of such land in the name of those holding as temporary transferees till such time as the right of the emigrant should be held to have finally lapsed. It would be the chaudhri's duty to collect from each cultivator the amount shown as due from him in this annual rent-roll. For this and his other ordinary duties the chaudhri would receive certain perquisites, *viz.*, an allowance of 5 per cent on the rent-roll of the village, provided that he properly fulfilled his duties in connection with its collection, and the usual marriage and weighment fees. It is a question for discussion whether it would not be well to allow chaudhris to hold a certain area rent free. It is a very ancient and usual method of remunerating the official headmen in the case of non-landlord villages of the type prevalent here and up to the time of the Summary Settlement it had been a very general custom for the chaudhris to be so remunerated; its abrogation is one of the chaudhri's strongest complaints against the present arrangements. The rent free area would be of course strictly defined and care would have to be taken against the surreptitious extensions of it common in the part.

As between a system of fixed and one of fluctuating assessment, it is usually urged that the former is far more simple and easy to work. The easy and smooth working of a fixed assessment depends in a great measure, as already pointed out in discussing its applicability to the Suratgarh Nizamat as a whole, on the nature of the tract to which it is applied; even if the out-turn of the crops is precarious it is at least necessary that the cultivating population and the cultivated area should be fairly permanent in amount and not liable to great fluctuations in bad years or in a succession of such; where this is not the case a system of fixed assessment will soon come to be nothing more than a system of frequent distribution and re-distribution of the fixed assessment over a fluctuating area of cultivation. Again the difficulty of working a system of fluctuating assessment depends on whether the assessment varies with the area occupied or cultivated, or with the nature and out-turn of the crops actually produced in a given year without reference to the area occupied or cultivated. To appraise the out turn of crops on a given holding for the purpose of assessing them is always a matter of difficulty and requires constant inspection and supervision on the part of the superior officers and consequent trouble and annoyance to the cultivator; it also offers endless opportunities for dishonesty and oppression to the inferior staff; but where the matter for enquiry is the area occupied by each cultivator whether wholly cultivated or not, without reference to the nature and amount of the actual produce of his holding in and given year the greater part of the difficulty disappears. No Settlement however complete and perfect at the time of its introduction can possibly work satisfactorily of its own accord: it is necessary that a competent Revenue Staff should be constantly supervising its working, in other words oiling the wheels of the machine; unless therefore a proper system of revenue administration is inaugurated it is impossible for any

(ii) The right to cut and sell the *sajji* on the unoccupied waste of the village might be leased annually after the probable out turn of the crop had been ascertained to the chaudhris and such of the village cultivators as were willing to take the lease This would involve a separate annual arrangement for each village in which there was appreciable quantity of *sajji* growing

(iii) The State might cut and sell the *sajji* directly by the agency of its officials without the intervention of any lessee

The average annual income from *sajji* in any village is a matter which almost defies accurate calculation and assessment The plant itself is the spontaneous produce of waste land over which under the arrangements proposed for the Suratgarh Nizamat the State retains a landlord claim and the plant itself is thus peculiarly the property of the State The most suitable course would therefore seem to be to exclude it from consideration in connection with a Settlement between the State and the cultivators Regarding the matter as an extra Settlement one the most practicable method by which the State could realize its income from *sajji* would be the second of those enumerated above The lessees would of course be entitled to protection against wilful or negligent demage to the crop while growing but they would acquire no sort of right to the soil on which the crop grew

Future treatment of chaks in the Suratgarh Nizamat.

50 The system propounded in the three previous paragraphs refers to the village in existence before the Summary Settlement and not to the *chaks* or blocks of for the most part unoccupied waste land demarcated off and leased on progressive assessments to outsiders As already noticed in the latter part of para *31*, the tenure on which these *chaks* have been held hitherto is probably somewhat different from those subsisting in the original villages The lessees generally hold the chaks jointly in undivided shares and look upon themselves as having a landlord, in fact an almost proprietary claim to the land included in their *chak*, so much so that in several cases the lessees have in connection with the measurement operations now in progress applied for internal partition of the *chaks* in accordance with the shares on which they are held under the leases As far as can be ascertained it was apparently contemplated at Settlement that the lessees (*girindas*) should in fact be in the position of landlords for the term of the leases, the full landlod right being in some respects limited, and that this position or status should be made a permanent one at the next Settlement if the conditions of the lease had been in the interval satisfactorily complied with It would not be of much use now to enquire whether this has been done, for it is pretty clear that those *chaks* in which the landlord right of the lessees is not recognized as permanent for the future will be abandoned forthwith by their present lessees They will certainly not consent to be reduced to the position of more official rent collectors or to give up their landlord claim to the waste and it seems therefore useless to attempt to introduce into the *chaks* the system proposed for the villages of the Suratgarh Nizamat The only course open is therefore to recognise those who have hitherto been in the somewhat unsatisfactory position of lessees as having a landlord claim over the whole area of their *chaks* in proportion to their shares in existing leases and to frame a light fixed

assessment for each *chak* for the payment of which the whole of its present lessees will as far as the State is concerned be jointly and severally responsible but as between themselves in proportion to their shares. It will be needful to define the rights of those who cultivate land in the *chaks* but are not lessees, *i. e.*, have no recognised share in the leases under which they have hitherto been held. It is obvious that the status of these cultivators under the system proposed will be that of tenants of some discription. The majority of *chaks* are still quite undeveloped and it is clear that till their development has at all events reached a much more advanced stage than it has now the landlords will in order to induce tenants to settle be inclined to treat them with consideration in the matter of ejectment and rate of rent to be paid; some few *chaks* are however so far developed that the rights of the tenants should be put on a clear footing now. *Prima facie* new tenants settling in *chaks* are not entitled to the same consideration from the State as the older cultivators in villages would be supposing that the chaudhris were made landlords; and to unduly protect such tenants and thereby limit the power of the landlords to make as large a profit as possible out of their property in respect of which they are under considerable responsibilities, would be to destroy in a great degree the main incentive for the landlords to develop their *chaks*. On the other hand it is clear that all tenants who have been up to the present settled in these *chaks* by the lessees, and are now permanently resident there have had to face the difficulties and undergo the hardships which usually befall the first settlers in a newly founded village; these are more than usually severe in a tract like the Suratgarh Nizamat and this state of things will continue for the next few years. In my opinion a fair rule would be that all tenants who have permanently settled in these *chaks* up to the time from which the new Settlement comes into force or within a period of five years succeeding that date shall be deemed to be occupancy tenants in respect of all land which they may have already bought or which they may within that period bring under cultivation unless they settle on the express condition that they are not to have such rights. The rent payable by the tenant will be arranged by agreement between himself and the landlord at the time that he settles and in the absence of any express agreement will not be liable to enhancement for 5 years from the date of settling; the amount of the enhancement to be in all cases decided by judicial decree. This arrangement will not infringe unduly on the landlord's rights nor will it leave tenants who have settled without any definite understanding with the landlord as to their tenure entirly in his power. Cultivators resident in the villages from which the *chaks* were cut who still hold fields cultivated by them before the formation of the *chaks* will have an occupancy right in their fields and pay at a rate of rent fixed for the term of Settlement. The above occupancy right will descend by inheritance in the direct male line of descent from the person or persons first declared occupancy tenants.

Tahsils Nohar, Rajgarh and Bhadra.

51. It has been shown in Chapter III that in Tahsils Nohar, Rajgarh and Bhadra, which contain a large number of Khalsa villages we have the same type of non-landlord village presided over by the chaudhri or official headman as in the Suratgarh Nizamat, but in the former the superior status of the chaudhri is more or less markedly shared by those nearly related to him. The effect of the arrangements made in the Summary Settlement on the organization of the villages in these Tahsils has been

sketched in para 30. In most of the villages the whole body of cultivators with certain exceptions have during the currency of the settlement become joint in the profit and loss of the farm of the village on a fixed assessment. Where the village assets consisting almost entirely of the rents paid for occupied land were less than the amount of the assessment of the occupied land the balance was made up by a further distribution among the cultivators not necessarily in proportion to area held, but in some cases by a rate per house or per plough. When there was an excess it was either distributed among the cultivators or else expended on some object of common utility such as digging a tank or sinking a well or perhaps more frequently was misappropriated by the chaudhri who probably made over a portion to such of the cultivators as were sufficiently strong or influential to insist on having a share.

Applicability of the first system of assessment to these Tahsils.

52. It will be clear from the last paragraph that the first of the methods or systems of assessment enumerated in para 44 is not applicable in the present condition of the villages in these Tahsils. During the term of the Summary Settlement the chaudhri not having retained the farm (*theka*) solely in his own hands as has been the case generally in the Suratgarh Nizamat he cannot be said to have maintained his superior status and it would be out of the question to now convert him into an specially artificial sort of chaudhri landlord. The general objection to the system detailed in para 45 would apply still more strongly here. Were the system otherwise suitable the special objection urged in that paragraph with reference to the Suratgarh Nizamat would not be applicable, as the area of unoccupied waste in very much smaller, cultivation is more extensive, rainfall so far as it goes more certain, population more fixed and village assets less fluctuating.

The Second system

53. The second system of joint villages jointly responsible for a fixed assessment will generally be most suitable in the case of these three Tahsils. There are some traces of a tribal distribution, land, though it cannot be said to have any great value, is more in demand in consequence of a denser population than in the Suratgarh Nizamat, the area of unoccupied waste is far less and in many villages small, agricultural results are not so precarious and the population is for all these reasons more permanent. The distribution of a fixed assessment over the whole body of village cultivators in proportion to the area occupied by each, would therefore in all probability be far more permanent and therefore more workable than in the case of the Suratgarh Nizamat. Under this system the amount to be paid by each cultivator for the land in his occupation at settlement will be fixed and this will be the amount of his contribution to the total fixed assessment for the term of settlement. The whole cultivating body will have a joint landlord claim to the area of the unoccupied waste, and any cultivator will, with the consent of the other cultivators or of their representatives, the chaudhris, be entitled to break up land therein, (*nautor*). In such land he will be deemed to have a right of occupancy so long as he pays rent for it at a fixed rate. The total of all rents paid in this way for new cultivation in the unoccupied waste will be a village asset, the property of the joint body of village cultivators to be used either in defraying common village expenses or set off against the fixed assessment, the balance to be distributed in proportion to the areas of holdings as

recorded at Settlement. It may be advisable as a general rule to exclude village menials and such like from the joint body. In such a case they would be protected in the possession of their holdings and have to pay for them at a fixed rate.

The above proposal is of course open to the objection that the joint body so formed is an artificial one ; this is of course true, but under the circumstances detailed above it seems probable that the joint body will hold together except perhaps in an extraordinary series of bad years culminating in a famine. The unoccupied waste being small the system is not here open to the objection urged in the latter part of para 46 with reference to its adoption in the Suratgarh Nizamat.

Other tracts.

54. In the case of old villages in which there are survivals of a group of cultivators asserting and exercising a landlord claim over the entire area of the village it may be possible and advisable to make such a group responsible for the total fixed assessment of the village and to recognise their landlord claim and at the same time any system by which the rights and liabilities of the individuals of the landlord group have been measured and which may have survived. The other cultivators would be recognised as tenants holding under the landlords but with occupancy rights over their holdings.

In other villages in tracts other than those already dealt with, the decision as to the system of assessment to be adopted will have to be made on the lines already indicated : in all probability the system proposed for the three eastern Tahsils will be found mostly generally suitable.

Resume of rights in regard to possession of land. Proprietors.

55. It will be well here to give a clear statement of the rights in reference to possession of land which under the systems described above will be enjoyed by different classes of cultivators, leaving for consideration in the next paragraph the extent, if any, to which a power of alienation should be allowed.

In the villages of the Suratgarh Nizamat in which no village bodies jointly responsible for a fixed assessment or having any landlord claim to the area of the village will be formed and which for convenience may be called *raiyatwar* or *khatawar* villages, every cultivator holding land on his own account, *i. e.*, not holding land subordinate to and with the express permission of another cultivator as part of the latter's holding, will have a right to hold such land and any other land which he may break up from the unoccupied waste, permanently subject to the due payment of the State revenue or rent. Cultivators settling in the village subsequently to the introduction of the new Settlement will have an exactly similar right over their holdings. The right to the permanent possession of land will be heritable in the ordinary course of succession as governed by local custom. The holding over which the above rights will be recognised will be divisible in cases in which there are two or more cultivators interested jointly in the same holding. This heritable and divisible right to hold land is not an innovation but merely a more or less clear defination of existing custom based on the widely recognised claim of the first clearer and his decendants which has all along been in fact recognised by the State. Leaving aside the question of the right of alienation or transfer, each cultivator will be thus practically proprietor of all land held on his own account but will have no such claim over un-

occupied waste land. As regards the *chaks* in the Suratgarh Nizamat the lessees, now to be recognised as landlords, will have, with a similar reservation, a similar proprietary right over the areas of their respective *chaks*; the right will be a joint one if no partition has hitherto taken place; if it has, each landlord will hold in separate proprietary possession such portion of the *chak* as has been assigned to him at the partition and a *chak* jointly held will be divisible. Partition should not however be allowed to affect the joint responsibility of the landlords for the whole revenue of the *chak*.

In the joint villages in Tahsils Nohar, Bhadra and Rajgarh, each cultivator who is made a member of the joint body will have in respect of all land held in separate possession by him and on his own account a proprietary right similar to that enjoyed by cultivators in the *raiyatwar* villages in the Suratgarh Nizamat; in regard to the unoccupied waste the whole joint body will have a joint claim, the right of each individual being measured by the area of his separate proprietary holding.

In the older pre-Rahtor villages in which there survive groups of cultivators who assert and exercise a recognised landlord claim, whether joint or divided, over the whole area of the village, such cultivators will be recognised as landlords and will have proprietary rights of the nature described above, individually as regards so much of the area as is held in separate possession and jointly as regards the rest. The proprietary right is and has practically all along been recognised in these cases not so much on the ground of first clearance as on the ground of descent from the original founders or settlers in the village.

56. There remains for consideration the case of those who cultivate land in a village but in respect of it do not come within any of the classes of proprietors defined above. In the *raiyatwar* villages such cultivators will practically only be those who occupy a portion of the holding of a proprietor with his consent either express or implied. Of such land the cultivator is by local custom not regarded as the *dhani* (master or owner). Nor is the land regarded as his home field, (*gharu khet*), and when it came into his possession it had in almost all cases been previously brought under cultivation. It would therefore be unnecessary if not inadvisable to confer occupancy rights on the cultivators of such fields as against the proprietor except in very exceptional and special circumstances. The case of non-proprietary cultivators now settled or who will settle in the future in the *chaks* of the Suratgarh Nizamat has been dealt with in para 50. The occupancy right therein mentioned will apply only to land brocken up by the tenant and not to land brought under cultivation by or at the expense of the landlord and then made over to a tenant. In the joint villages of Nohar, Bhadra and Rajgarh Tahsils three cases will arise:—

Tenants.

(1) Land held on their own account by cultivators now resident in the village but who for some reason may not be included in the joint body. It will be the best course to confer on the cultivators of such land the same proprietary right as the members of the joint body will enjoy in their own holdings, but without any claim to the unoccupied waste or to a share in the profits of the village.

(ii.) Land held by a cultivator in a separate proprietary holding and with the consent express or implied of the proprietor. The status of such a cultivator will be the same as that laid down in the case of the Suratgarh Nizamat.

(iii.) Land brought under cultivators in the unoccupied waste by a cultivator resident in the village, whether a member of the village body or not, or by a cultivator who may come and settle in the village in the future. In such cases the cultivator or first clearer should in accordance with a well recognised custom be held in the absence of any express agreement to be an occupancy tenant holding under the joint village body, his rent once fixed being only enhanceable at Settlement. Fresh cultivation in the waste would only take place with the consent of the joint body or of their representatives the chaudhris.

In the pre-Rahtor landlord villages the cases which will arise will be :—

(i.) Land held by cultivators now resident in the village, and which was brought under cultivation by them or by their ancestors. In such cases the cultivators should be held to be occupancy tenants of such land under the landlord in whose sub-division *(panti)* of the village the land may be situated.

(ii.) Land previously held and cultivated by the proprietor of the *panti* or by a cultivator who has abandoned it and subsequently made over by the proprietor to another cultivator. Here no special claim to a permanent tenure arises and it will be advisable to regard the cultivator as holding without occupancy right.

(iii.) Land which will be broken up in future by cultivators now resident in the village or by those who will settle in the village hereafter. In the absence of express agreement such cultivators should be regarded as occupancy tenants of the land so broken up by them. The extention of cultivation here contemplated could of course only take place with the consent of the landlord in whose sub-division of the village the land was situated.

In short, except in the case of the *chaks* in the Suratgarh Nizamat, the principles observed in the definition of occupancy tenants are (i) that over land held at present by a non-proprietary cultivator who is himself the first clearer or the descendant of the first clearer, he has an occupancy right, (ii) that in respect of land which a non-proprietary cultivator may in future break up and bring under cultivation, the customary permanent tenure of the first clearer will be deemed to exist except in the absence of a definite and clearly proved agreement to the contrary, and the cultivator will be held to be an occupancy tenant in respect of such land.

The occupancy right should be as is the case with the customary permanent tenure of the first clearer, heritable in the direct male line of descent and, in cases where the occupancy holding is a joint one, divisible,

57 The question whether, and if so, how far the proprietary and occupancy tenures described above should be capable of alienation and transfer is a large one and can perhaps scarcely be fully dealt with here It is generally stated that no cultivator in the Khalsa villages has any right or title to alienate his holding by sale or mortgage and it is frequently urged that such a right should be conferred in order to increase the credit of the cultivator and thereby put him in a position to raise funds wherewith to meet the land revenue demand of the State and so render the collection of the latter more secure

Alienation and transfer of proprietary and other rights

With regard to the first of the above propositions, instead of relying on any alleged absence of right to alienate it is more to the purpose to enquire whether alienations of land are as a fact customarily made in the State As far as my experience goes alienations with the exception of a transfer of a field for temporary cultivation are very rare if not altogether unknown The alleged absence of a power of alienation may have something to do with this but the really important reason is that in the greater part of the State land is of so little value owing to its poor quality, the scarcity of the rainfall and other surrounding circumstances that it is practically not a marketable commodity Under such circumstances it is necessary to enquire how far the definite bestowal of a power of alienation on the cultivator would have any effect and secondly how far on other grounds it is expedient to confer such a power Land being apart from the absence of the latter of itself of little or no value as a subject of transfer for value it is hard to see how the mere creation of power or right to make such transfer would suddenly convert land into a marketable commodity This can only be brought about by the gradual development of the country, increase of population and other processes which will have an effect in increasing the demand for land and its produce In the eastern portion of the Suratgarh Nizamat the state of matters is for special reasons somewhat different In para 37 in connection with the subject of the *chaks* it has been shown that there is a rising demand for land in the adjacent parts of Ferozepore, &c, and that cultivators from those parts are desirous of taking up land in the eastern portions of the Hanumangarh and Mirzawala Tahsils The conferment of an unfettered power of alienation on the proprietors of *chaks* and on the cultivating proprietors in villages in these parts would no doubt result in the transfer of a good deal of land into the hands of cultivators and probably also of the trading classes in the adjacent British districts To judge from the manner in which *chaks* have been taken up and abandoned in the parts in question, much of the alienation would be of the nature of land jobbing and land would be acquired not with the object of founding new villages thereon and bringing it under permanent cultivation but with the object of re selling it at a profit If considerable quantities of land thus came into the hands of persons resident not within the limits of the State but in British Districts the collection of the revenue due on such land would become a matter of difficulty as experience shows in the case of the *chaks*, and one of the main objects for which the bestowal of a power of alienation has been recommended would be defeated

In addition to this the state of things now becoming so increasingly noticeable in some British districts, indebtedness of proprietors and consequent absorp

tion of proprietary rights in the hands of the moneyed classes accompanied by a degradation of the former proprietors to the status of tenant would be repeated on a smaller scale, but perhaps more certainly since the new Bikaner proprietors would not have the traditions attaching to a long period of recognised proprietary right to act as an inducement to keep out of the toils of the money lender.

The above causes for hesitating to confer an unlimited power of alienation do not, at present at any rate, exist in the other parts of the State where there are no special circumstances in existance to give an appreciable value to land, and the question of a power of alienation becomes in their case rather a theoretical than a practical one.

At the same time a general power of alienation to a proprietor or occupancy tenant residing in the same villages is, I think, a right which the State might concede without any harm. It would frequently be a convenience to a cultivator whose circumstances had deteriorated and who had come to have more land on his hands than he could manage or cultivate properly to dispose of a portion of it to a fellow cultivator in the village who could do more with it than he himself could. The right would be conferred on proprietors and occupancy tenants and would enable them to transfer their holdings by sale, or mortgage, or lease to any other proprietor or occupancy tenant residing and holding land in the same village but to no one else. A proprietor or occupancy tenant would also be allowed to let the whole or a part of his holding to any one even though not a proprietor or occupancy tenant of the village, but not for a period exceeding 5 years.

The power of alienation could gradually as found advisable be extended beyond the limits laid down above. It is inadvisable to confer at once a wide power of alienation which cannot be limited in the future if found to be leading to unsatisfactory results.

Pitch of the assessment in the future.

58. So far as regards a right to hold land without disturbance and its descent by inheritance to the heirs of the present holders, the persons responsible for the payment of the State land revenue will be treated as proprietors, but the bestowal of this name does not carry with it new rights; what has been proposed amounts merely to a clearer definition of what are in fact the present customary rights of the cultivators concerned, but in a somewhat indefinite form. The fact that the cultivators who in future are to pay the Government revenue will be treated as proprietors is not therefore in itself any sufficient reason for reducing the pitch of the assessment. In the British districts it may be laid down as a broad general rule that the revenue payment due from proprietors is pitched at 50 per cent of the net assets, the net assets being measured by the more or less full competition rent rates which tenants-at-will are ready to pay for the use and occupation of land. The position of the cultivators in the Khalsa villages who paid revenue to the State has hitherto so far as the pitch of the assessment was concerned been more analogous to that of tenants than to that of proprietors in British territory. There is no reason why this principle should not be maintained and the rates to be used for assessment purposes in Khalsa villages compared not so much with the revenue rates as with the rent rates prevalent in British territory, so far as such comparison is practicable.

59 Uniform assessment rates can only be satisfactorily framed for tracts in which there are a large number of villages situated in a fairly continuous block and which by reason of proximity present certain general physical features of the same kind The Khalsa villages situated elsewhere than in the three eastern Tahsils Rajgarh, Bhadra and Nohar and in the four Tahsils of the Suratgarh Nizamat are generally not situated in continuous blocks but are scattered here and there, it is therefore difficult to frame assessment rates in such cases

Assessment rates

In framing assessment rates it will be well to maintain the circles or subdivisions of Tahsils made at the time of the Summary Settlement for this purpose in the case of the four Tahsils of the Suratgarh Nizamat and in Tahsil Bhadra They represent fairly well real differences in soil

Statement II shows the rates for the assessment of cultivated and waste land which seem suitable for the various Tahsils and assessment circles in which Khalsa villages are found, it also compares them with the rates used in the Summary Settlement, and in columns 9, 10 and 11 are entered the gross total assessment obtained by applying the rates proposed to the present cultivated and waste areas of the villages The figures for cultivated area which have been used in the calculation are those obtained in the last *girdawari* (of St 1942), and are to a large extent dependent on the area measurements and calculations of the Summary Settlement The waste area has been obtained by deducting the present cultivated area ascertained as above from the total area as measured at the Summary Settlement The area figures are therefore almost entirely dependent on the last Settlement measurements and the somewhat unreliable nature of these has already been noticed Hence the resulting assessment shown in the columns 9-11 can only be taken as approximations more or less accurate

The six Tahsils in which Khalsa villages form continuous groups have been shown first as the Tahsils and circle assessment rates framed in these cases are more satisfactory and reliable than those in the other Tahsils where the villages to be assessed are more or less widely scattered The rates shown are in all cases per Bikaneri bigah (= 37 of an acre), except in Tahsil Hanumangarh and circles I and II of Tahsil Mirzawala where the bigah =⅝ of an acre or 1 69 of a Bikaneri bigah

As regards the Tahsils of the Suratgarh Nizamat Statement II deals only with the area of the original villages not with those of the *chaks* constituted at Settlement The circumstances under which they have been since held and the constant changes which have taken place in the holders together with the intervening periods of direct management which have occurred in many cases render accounts of average collections almost useless as any indication of the revenue which they may fairly be expected to yield in future As already remarked in para 37 it will be needful generally to assess these *chaks* on a lower scale than the villages in order if possible to induce the landlords to settle cultivators and develope cultivation in them permanently Little aid can thus be obtained from a consideration of their circumstances in framing standard assessment rates for the various circles in the Suratgarh Nizamat, and the best course in consequence is to exclude them in the process and in judging how far the resulting rates are suitable

In framing the cultivation rates in the Rajgarh and Bhadra Tahsils, a good deal of reliance has been placed on the average rent rates paid in the adjacent portions of the Hissar District and on rent paid by cultivators to the farmers, (*thekadars*) for land broken up since Settlement in the three circles of the Bhadra Tahsil. No very late statistics as to rents paid in the Sirsa and Fazilka Tahsils are available but such as there are have been referred to as far as possible in the case of the cultivation rates in the Hanumangarh Tahsil. The rates in the other tracts have been made more or less by a process of comparison with rates in the above tracts allowing as far as possible for differences of soil, rainfall and general developement. Much reliance has in all cases been placed on a comparison of the assessment resulting from the rates proposed with the accounts of average annual collections since the Summary Settlement. At present there are no statistics available of rent rates annually paid in *patta* villages, these are being prepared for purposes of comparison. Some detailed remarks as to the rates in each Tahsil and circle are made below.

Tahsil Rajgarh.

60. So far as the figures go, in this Tahsil as in Tahsils Bhadra and Nohar there appears to have been an increase in the cultivated area since Settlement, but the increase has not been so great proportionally as in the latter Tahsils.

Previous to the Summary Settlement the tract appears to have been always hardly treated in the matter of land revenue demand. The rate of 4 annas 3 pies per bigah cultivated used for framing the assessment at the Summary Settlement was in my opinion certainly too high, (*Vide* para 34 above and though the demand in this tract has been usually paid, inspection of the villages shows that this has been done with difficulty in some cases. The Settlement Officer himself appears to have been of opinion that reduction would in future be required in these villages, (*Vide* para 148 of the vernacular report on the Summary Settlement). The average rent rate paid in adjacent villages in Hissar is 2·8 annas per bigah. These rents are probably fairly full competition rents and indicate what a cultivator can afford to pay. There are at present no statistics to hand as to what rates are paid by cultivators for land newly cultivated since Settlement.* These will shortly be ready. The Rajgarh cultivator especially in the border villages is to some extent burdened with customs dues, and some villages complain that they prevent cultivators from neighbouring Hissar villages coming in to cultivate land temporarily in a good year. On the whole, I think that 2 annas 6 pies per bigah is the highest rate which can be safely used in assessing cultivated land and this rate agrees fairly well with the result of rough assessments framed by me for a number of villages after inspection on tour. The rate for waste I should fix at 6 pies per bigah on the whole waste area. A consideration of the number of cattle in the villages shows that this rate is not too high and rainfall being, as far as it goes, more secure than in other parts the grazing is usually good. The waste is in proportion less extensive than in the Suratgarh Nizamat, but for that reason there is little or more of it lying useless, in excess even of grazing requirements, and what there is therefore more valuable. I see no reason for assessing occupied waste at a

* Note.—Since writing the statistics have been received. They give 3 annas 1 pie per bigah as the average rent rate for *nautor*.

higher rate than that which is unoccupied The former is generally land which had been more or less exhausted by previous cultivation and is lying fallow for a time, it produces some *pala* in parts but the grazing on it is not as good generally as that in the unoccupied waste

61 Here again in spite of the increase in cultivation, I think that the assessment rates used at Settlement were too high, at all events to apply them to the present area would give an absurdly large increase in assessment The rent rate of 4 annas 4 *pies* in the adjacent Hissar villages is a fully competition rent rate paid by tenants at will for cultivated land which they hold for a succession of years, the rent being paid yearly whether the land is sown or not The 3 annas rent rate is not such a full rent, but is dependent on custom modified to some extent by competition

Tahsil Bhadra

The *thekadars* holding under the Summary Settlement are not allowed to collect for either old or new cultivation rent at a rate higher than the assessment rate, they may of course take lower rents They have generally done so in the Bhadra Tahsil and column 6 of Statement II, shows the average rent realized from cultivators of land broken up (*nautor*) since Settlement and which presumably they would not take up at the full assessment rate In regard to the higher one of the two Hissar rents it is to be remembered that though the cultivators to be assessed are to be regarded for that purpose as the tenants of the State still it is scarcely advisable for the latter to treat them in regard to the pitch of its demand as a rack renting landlord would treat his tenants at will in a fairly developed tract under British rule The local *nautor* rent is paid it must be borne in mind for new land which has comparatively recently been brought under cultivation while the assessment rate now to be framed will be applied to land which has been longer under cultivation as well as to *nautor* land The assessments to be imposed will moreover be fixed lump assessments to be paid up by the joint village body even if cultivated land is abandoned For the Tal circle, as a whole 3 annas 3 pies per bigah is a fair rate for cultivation and the result of rough village assessment made on tour lead me to think that it would be unsafe to go higher than this for a circle rate Some of the villages on the eastern border will however probably be able to stand more than this

This rate being fixed for the Tal circle 3 annas and 2 annas 6 pies per bigah are by comparison suitable rates for the Tal Tibba and Tibba circles, and agree fairly with the result of rough assessments made on tour The rate for waste can be put at 6 pies per bigah on the whole waste, as in Rajgarh, the remarks made with reference to that Tahsil apply here For the Tahsil as a whole these rates in spite of being lower than those used at the last Settlement give a slight increase in assessment This is due to the increase in cultivated area

62 The rates for cultivation used in this Tahsil at Settlement were far lower than those used in any part of the neighbouring Bahadra Tahsil The soil is as a rule lighter and more sandy than in the Tal and Tal Tibba circles of Bahadra but less so than that in the Tibba circle and there is also more rabi grown than in the latter 2 annas 9 pies per bigah is a fair rate for cultivation in this Tahsil generally This is equivalent to 1 37 annas per acre The average rent rate in the adjoining Bagar circle of

Tahsil Nohar

Sirsa at the Settlement of 1879–82 was about 5 annas per acre which so far as it goes would show that the above rate is a fair one. The Bagar rent rate was probably not a full competition one but to some extent regulated by custom. The rate for waste should be 6 pie per bigah on the whole waste area as in Tahsils Bhadra and Rajgarh. Owing to increase in cultivation the above rate, which is much the same as those used in the Summary Settlement gives a considerable increase in assessment.

Tahsil Hanumangarh.

63. The rates used in this Tahsil and in the Suratgarh Nizamat generally at the Summary Settlement were far lower than those adopted for the eastern Tahsils. This was undoubtedly necessary and the principle will have to be observed in any new Settlement. As has been already fully shown the tract in question though generally possessing an intrinsically superior quality of soil has a more scanty and precarious rainfall and under these circumstances the effect of the natural superiority of the soil is to a great extent lost ; in fact, in a year of short rainfall the harder loam is, as compared with a lighter soil, comparatively useless. The proportion of waste area is far larger and the tract is as a whole in a very undeveloped state and cultivation has decreased since Settlement.

No very recent statistics are available of average rent rates paid in the adjacent villages of the Rohi tract of the Sirsa and Fazilka Tahsils which generally resemble as regards soil, the First and Second circles of the Hanumangarh Tahsils. At the Settlement of the Sirsa District in 1879–82, 8 annas per acre appears to have been a common rate of rent for tenants-at-will in that tract. This would be equivalent to 5 annas per bigah. Since then the Rohi tract has developed greatly owing to the introduction of canal irrigation and cultivation has largely extended, but the Hanumangarh Tahsil has in the meantime been stationary in the matter of development and cannot be regarded as equal in any respect from a revenue or rent paying point of view to the Rohi tract in 1882. Previous to the Summary Settlement the highest bigah rate which the Raj ever took in this Tahsil was 3 annas per pukka bigah or if cesses be taken into account something over this. In my opinion 4 annas per pukka bigah, equivalent to 2·36 annas per Bikaneri bigah, is the most suitable rate for cultivation in the First circle of the Hanumangarh Tahsil. The rate for the whole area of waste, may be put at 8 pies per pukka bigah = 4·72 pies per Bikaneri bigah. This rate is lower than that proposed for waste in the eastern Tahsils, but here we have a larger area some of which is comparatively useless as it is in excess of grazing requirements so that as a whole bigah for bigah the waste is not so valuable.

In this Tahsil the soil though not extensively sandy becomes lighter as we go southward, so that for the Second and Third circles 3 annas 9 pies and 3 annas 6 pies per pukka bigah cultivated appear to be suitable rates. The rate for the whole waste area in these two circles should be 6 pie per pukka bigah equivalent to 3½ pie per Bikaneri bigah. The waste is more extensive than in the First circle and the remarks made above apply with greater force. The assessments resulting from the application of these rates to existing areas agree fairly well with the rough village assessments made by me on tour with a view to ascertaining the revenue paying capabilities of the Tahsil, but their total falls short of the average annual collections of the whole Tahsil since Settlement by

some Rs 3 300 or 1 7 per cent There is however little doubt that in this Tahsil and in the *Nizamat* generally much of the revenue paid since Settlement has been paid not by cultivators from the profits of cultivation but by the *thekadars* out of their own pockets by virtue of their responsibility for the fixed assessment, my impression is that this was especially the case in the last year, Sambat 1849 On the whole, I do not see my way to proposing higher rates for cultivation in this Tahsil than those suggested It must be borne in mind that, as already proposed there will be no fixed lump assessments on the villages except as regards the waste and even this will not necessarily be framed in the case of each village at the waste rates proposed above but will depend largely on the number of cattle actually owned by the village The sum entered in column 9 of Statement II is the initial amount of revenue which the Raj will obtain from the cultivated area This applies to all the Tahsils in the Nizamat and renders comparatively useless a comparison of the sums obtained by applying the proposed rates to the areas at present cultivated and waste with the average annual collections of past years The above proposals as to rates do not apply to the Nali area

64 This Tahsil lies to the west of the Hanumangarh Tahsil At Settlement it was included partly in the latter and partly in the Suratgarh Tahsil the northern portion which is characterised by a soil of fairly firm loam was included in the First circle of the Hanumangarh Tahsil The rainfall is probably less than in the latter Tahsil and the proportion of cultivated area is smaller The northern portion or First circle is certainly inferior to the First circle of the Hanumangarh Tahsil and the population includes a larger proportion of Mussalman Raths who are inferior cultivators On the whole lower rates are needed than in the First circle of the Hanumangarh Tahsil 3 annas 9 pies per bigah is fair for cultivation and 6 pies per bigah for waste The resulting assessment on present areas is in excess of the average annual collections since Settlement The above proposals will also be applicable to two villages included at Settlement in the Second circle of the Hanumangarh Tahsil but now in Mirzawalah My rough village assessment framed on tour were made before the cultivated area had been ascertained by the *pardi wari*, on areas roughly stated by the cultivators of each village and these were in most cases too small Allowing for this the assessments made agreed fairly well with the result obtained from the rates now proposed

Tahsil Mirzawalah

The Utaradh circle of Mirzawalah was at Settlement included in the Suratgarh Tahsil The soil is lighter and inferior to that in the First circle of this Tahsil and also to that in the Second circle of the Hanumangarh Tahsil which lies to its east The cultivated area has decreased since Settlement and is now only 7 per cent of the whole area in the case of villages as against 13 per cent at Settlement The rate for cultivation should be lower than that in the First circle to the north which is the same as that in the Second circle of Hanumangarh I should therefore fix the rate a 2 annas per Bikaneri bigah equivalent to 3 38 annas per pakka bigah The rate on waste should be 3½ pies per bigah (Bikaneri) =6 pies per pakka bigah The sum obtained for the whole Tahsil by applying the proposed rates to existing areas slightly exceeds the average annual collections

65 The Utaradh circle of the Suratgarh Tahsil is similar as regards soil and development to the adjoining Utaradh circle of the Mirzawalah Tahsil to the north Cultivation is 11 per cent of the total area in villages, the same rates are suitable The total sum

Tahsil Suratgarh

by applying these rates is less than the average annual collections but in this circle, especially in the last year, the collections were in excess of the amounts actually paid by cultivators to the *thekadars* ; it also agrees fairly well with the rough assessments made on tour but is somewhat below their total. The Dhora circle of this Tahsil lies to the South of the Nali area and is on the confines of the central sandy tract of the State. The soil is light, sandy and uneven and sand hills cover most of the area. There is a larger proportion of cultivation than in the Utaradh, 19 per cent as against 11 per cent. The light soil though intrinsically inferior to that north of the Nali area yet has compensating advantages under short rainfall. The soil is inferior to that of the Third or southernmost circle of the Hanumangarh Tahsil. The rate proposed for that circle was 3 annas 6 pies per pakka bigah equivalent to 2 annas per Bikaneri bigah. Suitable rates for this circle will be 1 anna 9 pies per bigah cultivated and 3 pies per bigah on the whole waste area. The sum resulting from applying them to the present cultivated and waste areas agrees fairly closely with the average annual collections and with the total of the rough village assessments made on tour. The above rates do not apply to the Nali area.

Tahsil Anupgarh.

66. In Tahsil Anupgarh only 3 per cent of the whole area is cultivated. The immense areas of waste are to a great extent useless as they are far in excess of the grazing requirements of even the large herds of cattle which are owned by the Raths in this Tahsil. It is therefore useless to attempt to frame rates in this circle which shall have any meaning. The far greater part of the revenue demand must in the nature of things be on account of profits from grazing and it is quite out of the question to attempt to estimate these by any rate per bigah. If a rate for cultivation is needed it should not exceed probably 1 anna 6 pies or 1 anna 9 pies per bigah as rainfall is peculiarly precarious. The sum of Rs. 16,000 entered in column 11 of Statement II is a mere rough estimate of what the revenue demand might possibly be in the villages of the Tahsil having regard to average annual collections in the past. The only course open in fixing some revenue demand for this Tahsil appears to be to assess the holding of each cultivator separately and to frame a fixed grazing assessment with reference to the number of cattle owned by the village which will be paid by each resident in proportion to the number of cattle which he may have each year. The Tahsil is practically a desert and as such outside the scope of Settlement operations as ordinarily understood. The arrangements in regard to the *chaks* in this Tahsil appear to be in a hopeless state of confusion. Their boundaries are generally not demarcated and many of them have been leased to the chaudhris or other residents of the villages whence they were orginally formed and are thus again practically parts of those villages ; all will probably have to be treated in this way as far as possible.

Other tracts.

67. The remaining tracts of the State may be dealt with together. In them the Khalsa villages mostly scattered and not situated in continuous or fairly continuous blocks. Any general Tahsil or circle rates cannot under such circumstances be more than very rough guides to the assessment of any particular village in the tract to which the rates refer. Those proposed and shown in Statement II have been framed both with reference to the annual average collections in the past and also to the principle that the rates should as a rule decrease from east to west, *i. e.*, broadly speaking with the rainfall.

68 The final result of applying the rates proposed to the present cultivated and waste areas of the Khalsa villages of the State, excluding the area included in *chaks* in the [illegible] and also the Nali area is to bring out a sum of Rs. 2,07,059 which would be the total estimate for a fixed lump assessment at these rates if the plan of framing fixed lump assessments were universally adopted. This sum is 34 per cent below the average annual collections since St. 1912–13.

Final Result [illegible]

It must be borne in mind that the cultivated area used in framing this estimate is the area actually under tillage *i. e.*, ploughed up in St. 1949. In the measurements now in progress the land which has been tilled either in the year of measurement or in the year immediately preceding will be recorded as cultivated and this will in all probability result in an increase in the area to which the rates proposed for cultivation would have to be applied in [illegible] an estimate for an universal fixed lump assessment.

69 The above proposals do not apply to the Nali area. This area is at present under a system of fluctuating assessment [illegible] different rates are taken for Kharif and Rabi cultivation (*vide* para 38). Under the Settlement [illegible] the Nali area but not carried out some portion of it were [illegible] within the external boundaries of the villages on [illegible]. The [illegible] will probably have to be repeated. The rest of the area with the exception of a few *chaks* in the Hanumangarh Tahsil is in the same position [illegible] as it was before the abortive Settlement [illegible] the direct control and management of the State. Fields [illegible] of the Nali area which has been included [illegible] village boundaries are generally more or less permanent [illegible] when rainfall and other circumstances are favourable [illegible] Nali area the same cultivator will generally till the [illegible]. In the unoccupied portion of the Nali area [illegible] included within any village boundaries but [illegible] management of the Raj officials matters are somewhat different [illegible] are not so common and cultivators more frequently [illegible]. There are [illegible] no statistics to show what proportion of the Nali area [illegible] whole very small, especially in the portion not included [illegible]

The Nali area [illegible]

For the present the best course will be to [illegible] direct control and management by the State [illegible] in the village boundaries and to divide it [illegible] purposes. This area being as a whole at the [illegible] fettered by any valid claims of any sort on the part of [illegible] the margin of the Nali area it will be open to [illegible] portion of the blocks mentioned above when [illegible] the right are forthcoming. I cannot [illegible] tion and [illegible] *chaks* without [illegible] taken up [illegible] mentioned in para 63 [illegible] be done gradually and after the [illegible] in [illegible] *chaks* have been [illegible]

Turning to the question of how the State revenue may best be realized from the Nali area, it is pretty obvious that in regard to the portion included within village boundaries the system of lump fixed assessments village by village is even less suitable than it would be in other parts of this Nizamat where its application does not as a fact appear to be proper, as already shown at length. Further the grazing in the Nali area is generally poor, and those species of grass which are adopted for grazing purposes do not grow in anything like such abundance as in the lighter uplands on either side. The uncultivated Nali area is not in short worth much as pasture land so that to impose a lump grazing assessment as recommended elsewhere is out of the question. For the areas not included within village boundaries fixed lump assessments of any sort are obviously impracticable for there are no persons who could be made responsible for the payment. A system of assessment per individual holding seems therefore to be the only feasible one.

The *dhar i. e.*, that portion of the area in which the main stream of the floods flows, to the east of Hanumangarh and for a short distance to the west of it consists of hard clayey soil which has to be well moistened by floods before it can be tilled. The other portion of the Nali area in this part and the whole of it to the west of this can be cultivated on rainfall alone, but the soil being generally a firm clayey loam especially towards the centre requires a greater rainfall than the lighter uplands on either side. The Nali area generally benefits to some extent by the drainage from these uplands.

Besides wheat which is confined to the flooded area, the only other important Rabi crop in the Nali area is *taramira*, but it may almost be considered a Kharif crop as it is sown amidst the growing *jawar* and *bajra* before they have ripened. Except in years when the floods are especially high very little barley or gram either singly or mixed or indeed any other sorts of Rabi crops are grown. The table in the margin gives statistics for three years of the flooded area cropped with wheat, barley, gram and *taramira* respectively. In St. 1944, the whole Nali area was flooded up to and for some distance west of Hanumangarh.

Years.	Wheat.	Barley.	Gram.	Taramira.
St. 1944-45	10,097	102	5	43
St. 1947-48	29,841	534	1,437	2,932
St. 1949-50	5,631	49	78	3,943

Areas in pakka bigahs.

The flood subsided in the middle of September. In St. 1947, the volume of the floods was far greater than usual and the water passed beyond the western boundary of the Hanumangarh Tahsil into one or two villages of the Suratgarh Tahsil. The flood did not subside till the middle of October. In St. 1949, the volume of the floods was apparently considerably less than in St. 1944. The Kharif crops are nearly all grown on rainfall alone ; in some cases when the land (*kachhi*) at the margin of the Nali area after having been flooded emerges in time for Kharif sowings it is sown with *jawar* and *gawar*. The principal Kharif crops sown on rainfall alone are *bajra* and *jawar*. Bajra is unsuited to the firm soil but the ignorant bagri cultivators insist on cultivating it though *jawar* appears to be taking its place to some extent.

Agricultural results are on the whole peculiarly precarious, in the flooded area owing to uncertainty in the time and volume of the floods and in the remain-

der owing to the unsuitability of the generally scanty rainfall to the firm and in some places hard clayey loam soil Under these circumstances, I do not think that even in the portions included within village areas where cultivating possession is fairly permanent a system of fixed assessment holding by holding payable yearly whether the area held is in any particular year sown or not is suitable. I should recommend a system assessment by fixed rates on the area actually sown each year This is in principle the system now in force, but the antiquated and inconvenient system of *batai* for Rabi crops ought to be abandoned and cash rates substituted for it In the adjacent Sirsa Tahsil a system of fluctuating assessment is in force for land flooded by the Ghaggar The assessment is made harvest by harvest at crop rates per acre on the area sown, if the crop fails entirely no assessment is imposed and if the produce is poor the area affected is assessed at half rates The crop rates are —

	Rs	As	
Wheat	1	8	per acre
Other Rabi crops and Jawar	0	12	do
Other Kharif crops (except Rice)	0	8	do

These rates were framed to represent one sixth of the average gross produce of these crops per acre sown The share of the Rabi produce taken by the State in the Nali area is, as already stated, one fourth On this scale, the other elements in the cultivation *viz*, estimates of price and yield, remaining unaltered, the above rates on the pukka bigah would stand as follows —

	Rs	As	P	
Wheat	1	6	6	per pukka bigah
Other Rabi crops and Jawar	0	11	3	do
Other Kharif crops (except Rice)	0	7	6	do

The estimates of yield in seers per pukka bigah and of price in seers per rupee which were used in framing the above rates were as follows —

Crop	*Yield*	*Price*	
Wheat	150	24	Rs
Barley	150	48	"
Gram	150	42	"
Jawar	100	45	"
Bajra	75	35	"

Bajra is sown in the flooded area in Sirsa It is a somewhat difficult matter to arrive at a fair estimate of the average rates of yield in the flooded Nali area of Hanumangarh

If the statistics relating to the *batai* taken in St 1947 48 for the Rabi crop are to be trusted the total yield of crops and the averages per pukka bigah were as follows —

Crops	*Area in pukka bigah*	*Total yield in maunds*	*Average yield per pukka bigah*	
Wheat	29 841	1,82 024	244	seers
Barley	534	3,183	238	do
Gram	1 437	6,404	178	do
Taramira	2,932	9,659	132	do

and a considerable margin has to be left for a possible future fall in prices In years when there is an extensive area under Rabi crops it is probable that a considerable portion of the produce will be in excess of the local demand, specially in the case of wheat and barley and it will be exported to adjacent British territory, in such a case the value of the crop to the cultivator will depend more or less on the price which can be obtained there after paying the customs export duty On the whole, I should estimate average prices in seers per rupee as follows, for the purpose of valuing the State share of the produce of flooded crops in the Hanumangarh Nali—

Wheat	24	Seers
Barley	35	do
Gram	32	do
Taramira	21	do
Jawar	35	do

The value of one fourth share of the yield of one pukka bigah of each of the above crops sown on flooded land in the Hanumangarh Nali at the estimates of average yield and price framed above would stand thus, the Sirsa rates per pukka bigah enhanced to the one fourth standard being added for comparison —

Crops	*Rate*			*Enhanced Sirsa Rates*		
	Rs	A	P	Rs	A	P
Wheat	1	10	8	1	6	6
Barley	0	14	3	0	11	3
Gram	0	15	0	0	11	3
Taramira	0	15	0	0	11	3
Jawar	0	11	5	0	11	3
Other Kharif crops (except Rice)				0	7	6

In addition to one fourth share of the produce of Rabi crops, the State takes *jawar* at Re 1, per plough cultivating land for the Rabi This amounts to about 1½ annas per pukka bigah as one plough can prepare about 10 bigahs for the Rabi harvest in the flooded Nali area

In regards to the Sirsa rates for *jawar* and other Kharif crops it must be borne in mind that they apply to crops sown with the aid of floods, while, as shown above, the major portion of the Kharif crops in the Nali area of the Suratgarh Nizamat are sown on land which is never reached by the floods at all

The crop rates which, I should recommend for each Tahsil for the purposes of fluctuating assessment are as follows —

Tahsil	*Crops*	Rs	A	P	
Hanumangarh	Wheat	1	8	0	per pukka bigah
	All other flooded *Rabi crops*	0	14	0	do
	Flooded Kharif crop (mostly *jawar*)	0	12	0	do
	All other crops sown on rain fall alone	0	6	0	do
		0	3	0	per Bikaner bigah
Suratgarh	All crops	0	2	6	
Anupgarh	All crops				

The six annas rate per pukka bigah would equal $3\frac{1}{2}$ annas per Bikaneri bigah. The rates in Tahsils Suratgarh and Anupgarh were the whole of the cultivation is on rainfall alone are thus lower than in Hanumangarh. This is justified by the decrease of the rainfall from east to west and by the far smaller proportion of Rabi cultivation.

The above crop rates would be applied to all lands sown as measured up at the *girdawari* ; if the crop had entirely failed in any field the assessment on it at the above rates would be remitted while a field of which the produce was poor would only pay at half-rates.

There is a small portion of the Nali area in the Hanumangarh Tahsil which is included in *chaks* of which possession appears to have been given to intending lessees at the time of the abortive Settlement already described. The lessees have not settled permanently but appear to insist on retaining their *chaks*. The best method will be to demarcate the latter and to fix a light lump assessment framed with reference to the circumstances of each *chak*.

CHAPTER VI.

Settlement Operations.

The nature of the work involved in the Settlement.

70. In order to carry out the proposals made in the last chapter a survey of the area of the Khalsa villages will be needed with the exception probably of those in the desert tract of Hanumangarh. The main object of this survey will be, (i) to ascertain the areas of cultivation and waste included within the boundaries of each village, (ii) to ascertain the limits and area of the holding of each cultivator. The information thus obtained will supply materials for framing the fixed lump assessments of villages where that method is adopted, and also for fixing in all cases the payment which each cultivator will have to make in future in respect of land held.

In many of the older villages also enquiry will have to be made as to the persons who by vertue of an inherited and hitherto recognised landlord claim are in future to be held responsible for the payment of the revenue and entitled to the common income of the village. A field map and a register of fields and other subsidiary papers will be prepared for each village measured.

The survey is needed not only for the immediate purposes of the Settlement but also for the proper future working of any system of revenue administration which shall have any pretensions to be satisfactory. In fact in a country in many portions of which cultivating possession changes much, it is a matter of great importance that a reliable record of all changes shall be kept up, if, let alone all other matters such as disputes as to rights, &c., the State revenue demand is to be realized without confusion and delay. These remarks are perhaps only fully applicable to the more cultivated and developed parts of the State ; to the Anupgarh Tahsil with its 3 per cent of cultivation which is not likely to increase for a long time to come, they have scarcely any application whatever. The tract is a desert and scarcely affords any field for anything resembling revenue administration as usually understood ; and a cultivated field being a rarity

it is grotesque to talk of a field survey in connection with it. Village boundaries are said to exist, but if they do they are not demarcated in any recognizable shape or form nor are there any maps from which they could be identified. It is in fact difficult to see what object could be gained by even a survey of the external boundaries of villages. The tract is neither more nor less than a huge expanse of waste with collections of huts or houses, which may in some places be dignified by the name of villages, scattered sparsely over it. Any revenue to be realized must be fixed with reference to the number of houses and cattle in each of the inhabited units; to employ the usual paraphernalia of a Settlement, such as measurement, rates, &c., is little short of absurd.

The other principal portion of the Settlement work is of course assessment or fixing the amount of the State demand either in lump on the village for a term of years or otherwise. The matter has been dealt with at length in the last chapter.

Method of survey.

71. The method of survey employed is that by the sight and plane table. The procedure briefly is as follows. The distances between pillars on the village boundary are chained and accurately recorded, subsidiary stations which aid in the plotting of the boundary and of the fields within the village area are also set up and the distances between them are chained and recorded, as also the perpendicular distances of boundary pillars from lines joining subsidiary stations; with these materials ready the *amin* or measurer by means of the sight, plane table cross staff and scale makes an accurate plot of the village boundary and of all subsidiary stations. When this done, the fields are plotted one by one within the already plotted village boundary. The method conduces to speedy and accurate work. The system of square measurement would probably give even more accurate results but as the waste area in many parts is so extensive much time would be wasted by this method in cutting waste land uselessly up into squares.

The area of cultivated fields and occupied waste is calculated by measuring perpendicular distances with the chain and that of unoccupied waste by taking out such distances by scale measurement thus saving the labour of actual chaining.

In the Hanumangarh Tahsil and in Circles I and II, of the Mirzawala Tahsil, the chain used is that known as the *pukka jarib*, and is $82\frac{1}{2}$ feet in length; a square of two chains is equal to one pukka bigah $=\frac{5}{8}$ acre. In all the other Tahsils the chain to be used is the local chain, $63\frac{3}{4}$ feet in length; a square of two such chains is equal to one Bikaneri bigah = ·37 of an acre.

The maps are drawn to scales of 8 or 10 chains per inch according as the longer or shorter chain is used. These scales are equivalent to 220 and $212\frac{1}{2}$ yards to the inch respectively.

Progress of the Survey.

72. At the time of my joining at Bikaner in August 1892, no preparations of any sort whatsoever had been made for the prosecution of Settlement work. There were no survey materials of any description fit for use. The only staff to hand were the ordinary State Patwaris, Girdawars and Naib Tahsildars but they were almost without exception ignorant of any form of Settlement work, and even in the ex[illegible] of [illegible]

their ordinary duties were very far from satisfactory. The State had at my recommendation entertained two patwari teachers for two or three months before my arrival, but in that short time and with such material to work upon little improvement could be made. In short the ordinary subordinate staff was in August 1892 utterly worthless for Settlement purposes. The whole work had to be and was begun *ab initio*.

The first step was to collect and train a staff of *amins* or measurers ; this was taken in hand at once and arrangements made for their training at the Sadar; some officials of a higher grade were also entertained for the supervision of the Settlement Staff and the ordinary State Girdawars and Patwaris.

At the end of September a *girdawari* or inspection field by field of the Kharif harvest was undertaken. So imperfectly had the work been done in past years and such was the worthless character of the subordinate Revenue Staff that the work took over three months to accomplish. Meanwhile measurement apparatus was being prepared as fast as local resources in this direction would permit and the school for training the measurement staff was removed to Suratgarh as it would there be nearer the scene of the major part of the Settlement operations.

Measurements were begun in the Hanumangarh Tahsil of the Suratgarh Nizamat in the end of February 1893. No operations were undertaken in the Reni Nizamat until I had an opportunity of inspecting it which I did in February and March. A school for the instruction of the measurement staff was opened at Rajgarh and supervising officers were appointed for the Reni Nizamat and for the Tahsils. Measurement work commenced at the end of May in this Nizamat and in the Bikaner Tahsil at the end of April.

Statement III, shows the progress made in measurement operations up to June 1st 1893. The true area measured is somewhat in excess of the amount shown in the Statement as it does not include the unoccupied waste of several villages the actual measurement and survey of which had been completed but the area had not up to date been taken out by scale. Probably the actual area which had been surveyed and measured up to June 1st was not much under $1\frac{3}{4}$ lakhs of pakka bigahs. Some 10 or 12 villages are under measurement in the Reni Nizamat, but work had not commenced long-enough to show much progress by the beginning of June. The preparation of the Field Register and other subsidiary papers has of course gone on concurrently with the actual work of measurement.

Excluding the Anupgarh Tahsil the area of the Khalsa villages of the State by the returns of the somewhat rough measurement made at the Summary Settlement is 22,89,771 acres ; the area of the Anupgarh Tahsil is 7,72,398 acres, giving a total area for the whole of the Khalsa villages of 30,62,169 acres. The above figures are of course owing to the methods of measurement employed at the Summary Settlement no more than approximations to the real facts.

Of the above area 1,75,000 pukka bigah equal to 1,09,375 acres may be taken as having been surveyed up to the end of may, leaving a balance exclusive of Anupgarh, of 21,80,396 acres still to be surveyed.*

* NOTE.—Up to 15th August 1893, 3,25,236 acres including 84 complete villages have been surveyed.

It may be estimated that when the full strength of the measuring staff both patwaris and special *amins* having completed the training stage is in full working order and initial friction of various kinds is overcome about 2 lakhs of acres on the average will be measured in 3 months, giving 8 lakhs of acres per year. This of course assumes that the hot weather will continue to be as favourable for survey work as it has been this year. At this rate the survey of the khalsa villages, excluding those in Anupgarh, will require a period of 2 years and 9 months from the present time, and this would put the date of the completion of the survey at about the end of March 1896. If the Anupgarh villages are measured the rate of progress in their case will be considerably more rapid and they will probably be completed in another six months, supposing that the hot weather of 1896 is not very severe, otherwise it will be impossible for work to proceed in them at that season. In any case the whole of the Settlement operations both survey and subsidiary would not be finally complete much before the end of the hot weather of 1896, or more than 3 years from the present time thus making the whole period of Settlement operations counting from August 1892, somewhat over 4 years. An increase in establishment which of course would imply increased annual expenditure would shorten the period, but with the present establishment the above is probably a fairly approximate estimate of the time which will be required to complete the Settlement operations satisfactorily.

Establishment entertained and cost incurred to date and probable future cost.

73. Statement IV shows the establishment and expenditure budgetted for the year April 1st 1893 to March 31st 1894 the establishment actually entertained on June 1st 1893 and its monthly cost and the actual expenditure incurred under all heads from August 1892 to May 31st, 1893, a period of 9½ months. During that period a sum of Rs 30,359 has been spent on the Settlement or excluding the pay of the Settlement Officer, Rs 17,849. The Statement explains itself.

Of the two Superintendents one on Rs 150 p m has immediate charge of Settlement operations in the Suratgarh and the other on Rs 125, of those in the Remi Nizamat. The former official is Munshi Gopi Chand, a Deputy Superintendent of Settlement in the Panjab, whose services have been lent to the State. He joined in the September 1892, and has since worked with zeal, industry and exceptional intelligence. It is largely owing to his great exertions that a good start has been made in the Suratgarh Nizamat. The other Superintendent Maulvi Inayat Hussain, is also a Panjab Deputy Superintendent, he has only lately joined. Of the Deputy Superintendents, the services of two have been lent to the State, and the other four have left British service in the Panjab to come and work in the Settlement. Of the Field establishment budgetted for all has been entertained with the exception of some *munsarims* or subordinate inspecting officers and some *amins* or surveyors.

Under expenditure other than that on establishment the cost of measurment apparatus is a fairly heavy item amounting to Rs 2,588 since the beginning of the operations. It consists largely of the cost of 150 sets of apparatus complete which are being made up locally, nearly, the whole amount required has now been received. It will be indispensably necessary for patwaris' work even after the Settlement is completed so that it is not solely a Settlement charge. C

of lithographic printing of forms for measurement and other purposes will also be a heavy charge in the future. It will be observed that a considerable part of the establishment does not as yet receive the full pay of their posts. On the whole Rs. 70,000 is probably by no means an over estimate of the average annual expenditure which will have to be incurred on Settlement Operations up to the time of their completion, *i. e.*, for a period of at least 3 years from the present time. This would give as the total of future expenditure, Rs. 2,10,000, which with the expenditure already incurred would amount to something over Rs. 2,40,000. It may therefore be said that the Settlement from beginning to end will cost something under 2½ lakhs. The assessable annual land revenue of the Khalsa villages excluding the *chaks* and the Nali area may be put at roughly 3 lakhs. The Settlement would thus cost 83 per cent of one years land revenue of these villages.

BIKANER: }
27th June, 1893. }

P. J. FAGAN,

Settlement Officer.

STATEMENT No. III.

PROGRESS OF SURVEY.

STATEMENT No. III.

Showing Progress of Survey.

Nizamat.	Tahsil.	No. of villages.	Area measured up to June 1st			Remarks.
			Cultivated.	Waste.	Total.	
Suratgarh ...	Hanumangarh ...	Completed 30	63,767	51,909	1,15,676	Areas in pukka bigahs.
		Under measurement 37	28,392	10,528	38,920	
	Total ...	67	92,159	62,437	1,54,596	
Sadr ...	Bikaner ...	Completed 2	51	259	310	Areas in Bikaneri bigahs.
		Under measurement 6	1,172	2,749	3,921	
	Total ...	8	1,223	3,008	4,231	
	Grand Total ...	75	93,382	65,445	1,58,527	
	Grand Total in acres.	75	58,150	40,039	98,189	

[illegible]

STATEMENT No. IV.

ESTABLISHMENT AND EXPENDITURE.

STATEMENT No. IV.

Showing Establishment sanctioned and entertained, and the expenditure under all heads up to June 1st, 1893.

1	2	3		4	5	6		7	8	9	10	11
Major head.	Section.	Establishment sanctioned in Budget for 1893-94=St. 1950.				Establishment entertained on 1st June, 1893.			Expenditure for 2 months of 1893, *i. e.*, from 1st April, 1893 to 31st May, 1893.	Total expenditure for 1892-93, *i. e.*, from August, 1892 to 31st March, 1893.	Total expenditure up to date *i. e.*, from August, 1892 to 31st May, 1893.	Remarks.
			Detailed heads.	Monthly cost.	Annual cost.		Detailed heads.	Monthly cost.				
				Rs.	Rs.			Rs.	Rs.	Rs.	Rs.	
Salaries of Establishment.	I. Settlement Officer.	I.	Pay and Contribution (average).	1,466	17,600	I.	Pay and Contribution ...	1,400	2,800	10,710	13,510	
				1,466	17,600			1,400	2,800	10,710		
	II. Field Establishment.	II.	1 Superintendent	150	1,800	II.	1 Superintendent	150	300			
			1 do.	125	1,500		1 do.	125	187			
			2 Contribution each at 10 p. m.	20	240		2 Contributions each at 10 p. m.	20	30			
			4 Horse allowances each at 15 per mensem.	60	720		3 Horse allowances each at 15 ,,	45	75			
			Total Superintendents ...	355	4,260		Total Superintendents ...	310	592	1,267	1,859	
			4 Deputy Supdts. at 60 to 80 p. m., average at 70 p. m. ...	280	3,360		4 Deputy Supdts. at 60 ...	360	526	870		
			2 Deputy Supdts. at 60 p. m. ...	120	1,440		2 do. do. at 60 ...					
			Contribution	10	120		Contribution	10	......			
			6 Horse allowances at 15 p. m. ...	90	1,080		6 Horse allowances at 15 ..	90	122			
			Total Deputy Supdts. ...	500	6,000		Total Deputy Supdts. ...	460	648	870	1,518	
			Total Supdts. and Deputy Supdt.	855	10,260		Total Supdts. & Deputy Supdts.	800	1,240	2,137	3,377	
			3 Munsarims at 35 ...	105	1,260		2 Munsarims at 25 ...	70	15			
							1 do. on 21 ...					
			7 do. at 30 ...	210	2,520		1 Madadgar at 17 ...	17	2,200	2,925	......	Madadgars are survey *Amins*.
							14 do. at 15 ...	210				
			30 Madadgars at 20 ...	600	7,200		3 do. at 14 ...	42				
							19 do. at 12 ...	228				
			50 do. at 15 ...	750	9,000		16 do. at 10 ...	160				
							54 do. at 8 ...	432				
			60 do. at 10 ...	600	7,200		15 do. at 6 ...	90				
			Total Sub Field Establishment ...	2,265	27,180		Total Sub Field Establishment ...	1,249	2,215	2,925	5,140	

III Old Patt... (illegible)

III	1 Teacher	5	2?0
	1 ...	0	24?
	Contingencies	?	??
	Total Schools	0	???
	Total Field	3 1?0	38?4?
	Settlement Officer		
	1 Clerk	75	9?0
	1 Reader Rs 3?—?5 average	40	480
	1 Moharrir Rs 20—30 average	25	300
	1 1?—2? average	20	240
	1 Record keeper	15	180
	1 Chaprasi	8	??
	3 Chaprasis @ Rs 7	21	2?2
	2 Office peons @ Rs 5	10	120
	1 Tent pitcher	8	??
	1 Kahar	2	24
	1 Bhishti	4	48
	1 Bhangi	2	24
		230	2 710
	Superintendents		
	2 Moharrirs on Rs 20	40	480
	4 on Rs 15	60	720
	2 Farrashes on Rs 8	16	192
		116	1 392
	Deputy Superintendents		
	6 Moharrirs on Rs 15	90	1 080
		90	1 080
	Total Office Establishment	436	?232
	Total Establishment	6 ?72	?18?
	Patwaris apparatus		1 ?00
	Stationery and Printing		1 ?0
	Miscellaneous		300
			3 ?00
	Settlement officer		??0
	2 Superintendents		?00
	Office Establishment		?0
	Other items		2?0
			2 ?00
	Settlement officer	80	?60
	2 Superintendents	160	1 9?0
	6 Deputy Superintendents	150	1 800
		390	4 680
	GRAND TOTAL		70 852

III	1 Teacher	2?	?0	113		This ... (illegible) ... staff at Suratgarh ...
	1 ...	1	??			
	Contingencies					
	Total Schools	4?	80	113	1?3	
	Total Field	?0?3	?5?	1??	?710	
	Settlement Officer					
	1 Clerk	7?	1?0			
	1 Reader	?				
	1 Moharrir	?0	118			
	1	20				
	1 Chaprasi	8		1 ?91		
	3 @ Rs 7	21				
	1 Office peon @ 5	5	87			
	1 Kahar	2				
	1 Bhishti	4				
	1 Bhangi	2				
		192	38?	1 2?1	1 6??	
	Superintendents					
	? Moharrirs on Rs 15	??	102	2?9		
	1 Moharrir on Rs 10	1?				
	2 Farrashes on Rs 8	1?				
		1?1	1??	???	31	
	Deputy Superintendents					
	4 Moharrirs on Rs 1?	?0	92	100		
	1 on 10	10				
		?0	9?	100	1?2	
	Total Office Establishment	?63	?79	1 ?20	2 1??	
	Total Establishment	3 8?2	6 914	17 0?	21 41?	
	Patwaris apparatus		8?9	1 ?69		* This includes cost of petty articles such as boxes, tables ... and hire of camels for conveyance of apparatus from Sadar to Suratgarh and ...garh
	Stationery and Printing		1?1	312		
	Miscellaneous*		133	3?		
			1 183	2 ?7	3 440	
	Settlement officer		31	??4		
	2 Superintendents		?7	2?7		
	Office Establishment		31	1??		
	Other items *		117	4?		* This includes Travelling allowance given on transfer to Establishment ... entitled to T. A. for tours
			24?	1 111	1 3?7	
	Settlement officer		?2	27?		
	2 Superintendents		1?0	3??		
	6 Deputy Superintendents		116	1?3		
			33?	?85	1 1?3	
	GRAND TOTAL		8 ?01	21 ??8	30 3?9	

The following is a very brief Note on the present state of Settlement Operations

---

1 The general principles governing the Settlement, together with a l[illegible] amount of practical detail, were laid down in the printed Settlement Report These have, with one or two minor emendations, been accepted by the Council

General principles

In addition to the printed report I have prepared a Note, which is being translated, and copied, in which are contained full instructions as to the carrying into practice of the principles laid in the report These two papers will, I think, enable the Settlement Officer to dispose of practically every question which can arise in completing the Settlement operations

2 The appended Statement No I gives details of area and number of villages measured up to November 15th

Measurement

The Survey work in the Suratgarh Nizamat has progressed most satisfactorily In the Hanumangarh Tahsil where there is the largest proportion of cultivation it is now practically complete Tahsil Anupgarh will not be measured, and, as the proportion of cultivated area in Tahsils Suratgarh and Muzawala is far smaller than in Hanumangarh, it is probable that the measurements in this Nizamat will be complete soon after the commencement of the hot weather The bulk of the Settlement Staff is now at work in this Nizamat The measurements in the other Nizamats will take longer, as in them there is, generally speaking, little unoccupied waste, and the number of separate fields or survey numbers is therefore much larger As soon, however, as the Suratgarh Nizamat is near completion the Amins can be drafted thence to other parts

3 All the papers to be included in the Settlement Record, except the Khatauni, are prepared concurrently with the actual work of measurement The Khatauni in the villages, of which the measurements have been completed, will now be taken in hand Detailed instructions in the matter, together with forms, have been printed and issued Before the Khatauni can be prepared, in cases other than those of villages in the Suratgarh Nizamat, it has to be decided whether the tenure of the village is to be joint or otherwise For this purpose a genealogical tree and a file of enquiry are prepared, and on this orders are passed

Settlement Papers

In this way, the tenure has been fixed in the case of a large number of villages, including nearly all those in which (as above) a decision on the point is needful, and the measurements of which have been completed The Settlement Officer should have no difficulty in disposing of the remaining cases on the principles employed in the cases already decided

4 That which is the essential portion of assessment work in a tract like Bikaner which is generally homogeneous throughout large areas, *i.e.*, the fixing of the pitch of the assessment, or in other words the assessment or revenue rates has been fully [illegible] of in the Settlement Report In the Suratgarh Nizamat, except in th

Assessment

in that of a few villages, on further process of assessment will be needed, as the tenure will in all cases with the above exceptions be *khatawar*. The Chaks generally differ little among themselves except so far as income from Sajji is concerned, and there should be little difficulty in fixing their lump assessments. The same remark applies to the Khalsa villages in other parts, the tenure of which will be generally joint, and which will be assessed at fixed lump sums. In a given tract there is generally little to choose in point of prosperity between one village and its next close neighbour. The general revenue or assessment rates will give an approximate estimate of the assessment to be fixed, and the Settlement Officer should have no difficulty in making the small additions to or deductions from this estimate needed by any special circumstances found in the village. I have left English notes on a large number of villages made after inspection ; if translated they may be of use to the Settlement Officer.

Expenditure.

5. Statement II appended gives details of the expenditure up to the end of November, 1893. The accounts up to that date are not as yet all closed, and the expenditure entered in column 3, is therefore, to some extent an estimate although a very close one. The total expenditure on Settlement operations incurred from the August, 1892, when I joined at Bikaner, up to the 30th November, 1893, is Rs. 60,734.

There will in future be a saving under the head of "Settlement Officer's pay." With this exception, columns 2, 3, and 4 appear to show that the Budget Estimate for 1893-94 is a fairly close one, although the year's expenditure will not reach the estimate.

The subsequent progress of measurements seems to indicate that the estimate of the period which would be required to complete Settlement operations made in para 72 of the Settlement Report was excessive, and that they will be concluded at a much earlier date than was anticipated. This will of course effect a considerable saving in the total cost of the Settlement.

BIKANER:
20th December, 1893.

P. J. FAGAN,
Settlement Officer.

STATEMENT I.

Progress of Survey.

Name of Nizamat or Tahsil.	No of villages completed	No of villages under measurement	Area measured in bigahs.			Remarks.
			Cultivated	Waste	Total	
Nizamat Suratgarh	110	23	2,91,721*	5,17,156*	8,08,877*	* Part of this area, i e, that in Hanumangarh Tahsil is in pakka bigahs which = 1 69 of the local or Bikaneri bigah
Do Reni ..	37	18	1,29,924	86,698	2,16,622	Up to 15th November, 1893
Do Sa lar	21	11	44,780	91,056	1,35,836	Do Do
Total	168	52	4,66,425	6,94,910	11,61,335	

STATEMENT II.

Expenditure.

HEAD.	Amount sanctioned for 1893-94.	Cost actual and estimated from April 1st to 30th November, 1893.	Balance of allotment.	Actual cost from August 1892 to 31st March, of 1893.	Total cost from August 1892 to 30th November, 1893.
	Rs.	Rs.	Rs.	Rs.	Rs.
A.—Establishment—					
Settlement Officer ...	17,600	12,465	5,135	10,710	23,175
Field Establishment ...	38,040	17,520	20,520	5,175	22,695
Office Establishment ...	5,232	3,054	2,178	1,620	4,674
TOTAL ...	60,872	33,039	27,833	17,505	50,544
B.—Apparatus, &c.	3,000	3,058	—58	2,257	5,315
C.—Travelling Allowance ...	2,300	897	1,403	1,111	2,008
D.—Contingencies	4,680	2,082	2,598	785	2,867
GRAND TOTAL ...	70,852	39,076	31,776	21,658	60,734

BIKANER: } (Sd.) P. J. FAGAN,

area of land to be held by him revenue free. This area will be calculated thus. An area equal to 15 per 1000 bighas of the total area of the village will be taken and this will be divided among the *Chaudharis* in proportion to their shares in the *Chaudhar* subject to a maximum limit of 100 bighas per *Chaudhari*. Where the village has been partitioned *into pattis* for the purpose of *Chaudhar*, the above villages will be calculated on the area of the *patti*. Each *Chaudhari* will be entitled to a remission of so much of the full revenue on his holding as would equal the assessment at the cultivation rate on the revenue free area falling to his share as cultivated above.

The customary village dues of a *Chaudhari* will be *Dholjwar and Dhari Mapa* in villages where such dues have been customarily collected up to the present time. They will be collected under the system, and at the rates hitherto in force in each village. *Shirkae Chaudhar* will be entitled as heretofore to share in these dues, [see (a) above], but not in the emoluments *i e*, the *Pachotra* and the *Chhut*.

Partition of Chaudhar

(*d*) In the great majority of cases the post of *Chaudhari* is held jointly by two or more *Chaudharis*, *i e*, their authority extends jointly to the whole area of the village. They will often want to partition the *Chaudhar*, *i e*, to have separate portions of the village area, corresponding *to their shares in the Chaudhar, assigned to them not in* proprietory right, but in which to exercise the duties and from which to draw the emoluments and customary dues of the *Chaudhari*. The matter can be dealt with in the manner laid down in detail in the directions for partition.

Chaudhar cases

(*e*) All suits and cases relating to Chaudharis should be heard and disposed of by the Revenue Department, and they should be excluded from the jurisdiction of Civil Courts.

IX.—Papers to be included in the Settlement Record, &c

Settlement Record

(*a*) The following papers should be bound up in one volume —

1 Khasrae Haddbast 2 *Khasrae Mend Katan* 3 *Khasrae Paimaish* 4 *Khatauni with page total*. The *Shajras* should be mounted by *Masavis* on cloth and kept unfolded in suitable tin boxes.

On [illegible] page of the *Khatauni* in the case of joint villages there should [illegible] of the distribution of [illegible] showing the *Idna Khatu* distribution rates for cultivation and [illegible] *dars which have been* calculated in accordance with the said method, (see part IV above). The above papers, when bound in one volume, will together with the *Shajras*, from the Settlement Record, and such Records should be kept either in the Record Room at the *Sadar* or in the Nizamat.

The *Khalsa* or preliminary map, the genealogical tree (*Shajra Nasb*) the files relating to the village tenure (*Surat i dehi*) and the files relating to the method of distribution (*Tafrik i bach*) should be kept by village *Bastas*.

(b) For the use of the *Patwari* copies of the following papers should be bound up in one volume :—

Patwari's copy.

1. Khasrae-Haddbast.
2. Khasrae-Mend Katan.
3. Khasrae-Paimaish (columns 1, 8, 19 only).
4. Khatauni with page totals.

In addition to this volume, the *Patwari* should be supplied with a cloth copy of the field *Shajra*, like those which have already been prepared in many villages. He will use this copy in his ordinary work, and make on it the corrections annually necessitated by extention of cultivation or division of fields [see X (*c*) below]. It will be seen that his copy of the *Khasra* will only contain the entries relating to area calculations. A new form will have to be printed for this.

X—Annual work and Annual Papers Girdawari.

(*a*) The most important portion of the *Patwari's* work, and in fact the whole basis of the revenue administration in the Khalsa villages will be the annual *Girdawari* of the *Kharif* and *Rabi* crops. This should be done in accordance with the printed instructions issued for the work in the current year. Some slight alterations will be needed in the headings of one or two columns in the *Khasrae Girdawari*, used this year. This I have explained to Rai Sahib Munshi Sohan Lal.

The *Kharif Girdawari* should be completed by the end of October, and that of the *Rabi* by the end of March.

Cattle Enumeration.

(*b*) In the villages in Nizamat Suratgarh and in the few *Khatawar* villages elsewhere in which it may be needful to collect grazing dues (*Bhunga*), the *Patwari* should, after the cattle have returned to their villages in the rains, count them and fill in the printed *Khasrae maweshi shumari*. The form used this year should be employed for the future with one or two additional columns, to supply the detail of kinds of cattle needed (see part V above). When the cattle have been counted, the *Patwari* should calculate the *Bhunga* due from each inhabitant of the village on the plan laid down in part V.

(c) Immediately on the completion of the *Kharif Girdawari* the *Khatauni* should be prepared. It would be more regular to defer this till after the completion of the *Rabi Girdawari* but the *Khatauni* will be indispensable for the current preparation of the *Fard-i- Bach*, and as the greater part, if not all, of the land intended for *Rabi* will have been ploughed at the time of the *Kharif Girdawari*, the *Khatauni* will show very nearly the correct state of the village cultivation in the past *Kharif* and the coming *Rabi*. Any little *Rabi* cultivation not included, will be counted as cultivation in the next year, and appear as such in the *Khatauni* of this year.

The Annual *Khatauni* should be prepared in the same form as the Settlement *Khatauni* and should show each field number separately.

In each *Khatidar's* holding the fields in existence at Settlement should be shown first and totalled, and under them those broken up and included in the holding subsequent to Settlement. In *Khatawar* villages the inclusion of such new fields will of course give rise to an increase in the revenue of the holding.

Fard Bach

(*d*) When the *Khataum* has been prepared and, where *Bhunja* is collected, the *Fard maweshi shumari* completed, the preparation of the *Fard Bach* will be an easy matter. It will be practically an abstract of the *Khataum* and the *Fard maweshi shumari*.

The form used this year will be suitable with one or two alterations which I have explained. The fields need not be entered in detail as in the *Khataum*.

Amendment of the field Map

(*e*) An important item in the *Patwari*'s annual work will be the amendment of his cloth copy of the *Field Map*. After the *Fard Bach* has been completed and distributed and the *Patwari* has completed the work of giving receipts for revenue paid, he should correctly plot in all new fields into his cloth map, i.e., both new cultivation from the waste, (*Nautor*) and also new fields formed by the division or partition of former fields. The new fields should receive fractional numbers. Thus, if the last number in the *Khasra* is 201, and a new field is broken up from the waste numbered 151 on the *Shajra* the new field will be numbered $\frac{202}{151}$, or if field No 152 is divided into two parts the new fields will be $\frac{203}{152}$ and $\frac{204}{152}$.

Remission and suspensions

(*f*) In a tract so entirely dependent on precarious rainfall as Bikaner remissions and suspensions of the revenue will be not unfrequently needed. It is out of the question to expect that any fixed revenue, however light, will in such a country be paid with absolute regularity. The causes of failure to pay may be broadly said to be (I) failure of crops and (II) emigration of cultivators, itself a consequence of (I). The first cause will equally affect *Khatawar* and joint villages. The second will be felt in the joint villages which will be assessed at fixed sums. In the *Khatawar* villages the departure of cultivators will automatically cause a reduction of revenue but not in joint villages. It will, therefore, be necessary at times, in a succession of bad years, to remit revenue in joint villages in which much land has in consequence of the departure of cultivators gone out of cultivation, and similarly in *Khatawar* villages cultivators will, although they have not left the village, often need relief in order to induce them to stay. Suspension is of little or no use in a country like Bikaner. If relief is to be given, it should take the form of a remission.

P. J. FAGAN,

Settlement Officer

BIKANER.
17th December, 1893